GEOLOGICAL SURVEY OF ALABAMA

WALTER B. JONES, STATE GEOLOGIST

Information Series 6

GROUND-WATER RESOURCES OF LOWNDES COUNTY, ALABAMA

A Reconnaissance Report

By
John C. Scott

Prepared by the
United States Geological Survey
in cooperation with the
Geological Survey of Alabama

University, Alabama
1957

LETTER OF TRANSMITTAL

University, Alabama

May 20, 1957

Honorable James E. Folsom

Governor of Alabama

Montgomery, Alabama

Sir:

I have the honor to transmit herewith the manuscript of a report entitled "Ground-water resources of Lowndes County, Alabama - a reconnaissance report" by John C. Scott, with the request that it be printed as Information Series 6 of the Geological Survey of Alabama.

Respectfully,

WALTER B. JONES

State Geologist

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ABSTRACT

Lowndes County, in the Coastal Plain of south-central Alabama, is bounded on the north by Autauga County, on the east by Montgomery and Crenshaw Counties, on the south by Butler County, and on the west by Dallas County.

The county is divided topographically into a belt of Black Prairie in the northern part of the county and the Chunnennuggee Hills in the southern part. Terraces of the Alabama River border the northern part of the county and flood plains border the Alabama River and streams of the area. The economic base of the area is agricultural, depending principally upon livestock, cotton, and timber.

Rocks of Cretaceous age underlie the entire county and are in turn underlain by older crystalline and metamorphic rocks whose exact age is undetermined. The Cretaceous rocks include the Coker, Gordo, and Eutaw formations, the Mooreville and Demopolis chalks, the Ripley formation, the Prairie Bluff chalk, and the Providence sand. Sand beds in the Gordo, Eutaw, and Ripley formations are the principal sources of water supply, and wells can be developed in sand beds of the Gordo and Eutaw which will probably yield as much as 500 gallons per minute (gpm). Wells yielding 20 to 50 gpm can be developed in the Ripley formation. The Clayton formation of Tertiary age overlies the deposits of Cretaceous age in the extreme southern part of Lowndes County but is not a source of water supply. Terrace and alluvial deposits of Pleistocene age are present in the northern part of the county and supply water to domestic and stock wells. Wells yielding sufficient quantities of water for municipal, industrial, and irrigation supplies probably could

be developed in these deposits adjacent to the Alabama River, especially in places where induced infiltration from the river would occur when wells were pumped.

Flowing wells can be developed in the Gordo and Eutaw formations in the lowland areas adjacent to the Alabama River and its tributaries in northern Lowndes County, and from the Ripley formation in the valley of Indian Creek in the southwestern part of the county.

Salty water is present in the Gordo formation in the county south of Collirene, Beechwood, and Hayneville, and in the Eutaw formation in the western half of the county with the exception of a small area west and north of Benton. The chloride content of water from the Ripley formation is relatively low, but concentrations of other minerals give the water in some areas an objectionable taste.

The presence of highly mineralized water in some aquifers and the cost of wells that must be drilled and cased to 500 feet or more to obtain water of good quality have restricted the development of ground water in Lowndes County. This report includes a tabulation of data for 196 wells, chemical analyses of water from 42 selected wells throughout the county, sample logs of 8 wells, drillers' logs of 25 wells, and a map showing the location of wells.

INTRODUCTION

Lowndes County, in south-central Alabama, is in the northern part of the Coastal Plain physiographic province. It is bounded on the north by Autauga County, on the east by Montgomery and Crenshaw Counties, on the south by Butler County, and on the west by Dallas County (fig. 1). The county has an area of 716 square miles and had a population of 18,018 according to the 1950 census.

Most of the water supplies in Lowndes County are obtained from wells developed in sand beds of the Gordo, Eutaw, and Ripley formations, which underlie the entire county, or in terrace deposits or alluvium in the northern part of the county. The economy of Lowndes County is primarily agricultural, and the major use of water is for domestic and stock supplies. The high mineralization of the waters from both the Gordo and Eutaw formations in parts of the county, and the cost of the deep wells required to obtain potable water, in many places have restrict-

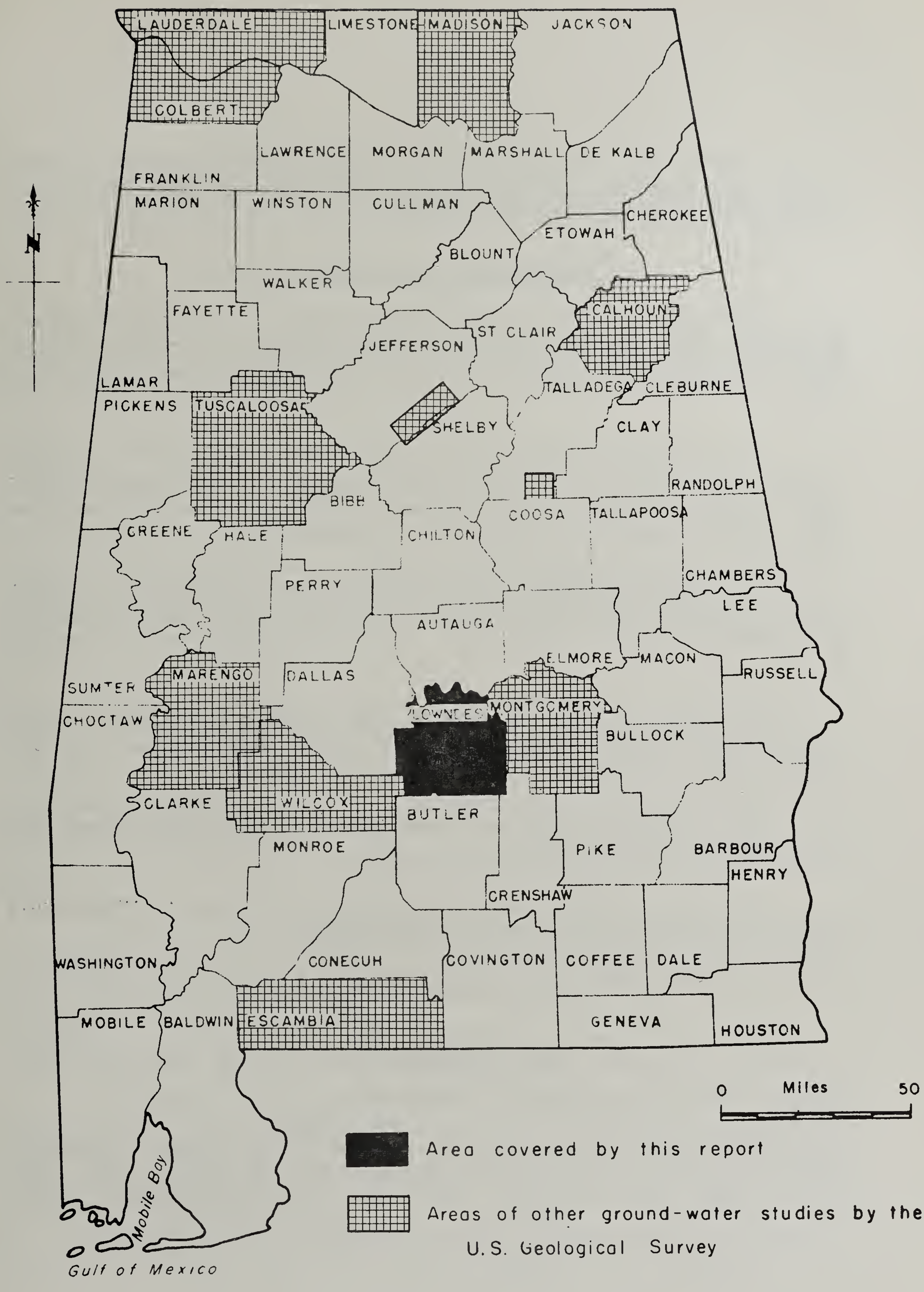


Figure 1. — Index map of Alabama showing area covered by the present report and areas in which other ground-water studies are in progress.

ed the development of ground water in the county. Cisterns are used to store rain water in some parts of Lowndes County where ground water of good quality is difficult to obtain.

Purpose and Scope of Investigation

The purpose of this investigation was to study the availability, movement, and chemical character of ground water in Lowndes County. The investigation was begun in October 1954 and included the following work:

1. An inventory was made of all drilled wells and of selected dug and driven wells to determine their number, distribution and location, depth, construction, yield, water level or artesian pressure, and use, and the water-bearing formation tapped by each.

Data were collected on 33 wells developed in the Gordo formation, 103 wells in the Eutaw formation, 49 wells in the Ripley formation, and 7 wells in terrace and alluvial deposits of Quaternary age (table 1, pl. 1).

2. Periodic measurements of water levels were made in wells L-3 and S-8, representative of the Eutaw and Gordo formations, respectively, to determine seasonal fluctuations (table 5).

3. A study was made of chloride and fluoride contents and the hardness of water from wells in the county.

4. Data on water use were collected to estimate withdrawals of ground water by pumping and by natural flow.

5. Reconnaissance geologic surface mapping was done.

6. The thickness, character, and water-bearing properties of the rock formations were determined, and a cross section was constructed to show the subsurface geology.

The investigation was made by the United States Geological Survey in cooperation with the Geological Survey of Alabama, Dr. Walter B. Jones, state geologist. The work was under the direct super-

vision of P. E. LaMoreaux, district geologist of the Ground Water Branch of the Survey, in charge of ground-water investigations in Alabama.

Previous Investigations

In 1904 E. A. Smith recorded depths, construction, and drillers' logs for several wells in Lowndes County. This information was published in 1907 as Geological Survey of Alabama Monograph 6, "The underground water resources of Alabama."

C. W. Carlston, in 1940, made a reconnaissance study of the ground-water resources of the Cretaceous area of Alabama and recorded data on 44 wells in Lowndes County. Water samples from 16 wells were analyzed for concentrations of chloride and fluoride. The results of this investigation were published in Geological Survey of Alabama Bulletin 52, "Fluoride in the ground water of the Cretaceous area of Alabama," and in Special Report 18, "Ground-water resources of the Cretaceous area of Alabama."

Reports describing the geology of Lowndes County include Geological Survey of Alabama Special Report 14, "Geology of Alabama," by G. I. Adams, Charles Butts, L. W. Stephenson, and C. Wythe Cooke; Geological Survey of Alabama Bulletin 48, "Notes on deposits of Selma and Ripley age," by W. H. Monroe; and U. S. Geological Survey Oil and Gas Investigations Map 105, by D. H. Eargle. The geologic map (fig. 3) in the present report is modified from the map prepared by Monroe.

A selected bibliography is appended to the present report listing reports, maps, and charts that contain information on the geology and ground-water resources of Lowndes County.

Acknowledgments

Acknowledgment is made to W. J. Bozeman and Son, well-drilling contractors, Pleasant Hill, Ala., for furnishing data on wells and drillers' logs and for cooperation in collecting drill cuttings from wells in the county.

Acknowledgment is made also to Dr. William Lee, chairman, Water Works Board, city of Fort Deposit; Ryals Brothers Drilling Co.,

Burrell Drilling Co., Layne-Central Drilling Co., and Alabama Drilling Co.; and to the residents of Lowndes County who furnished information on wells, use of water, and other data.

GEOGRAPHY

Topography

Lowndes County is in the northern part of the Coastal Plain physiographic province. There are parts of four physiographic divisions in the county: the terraces, the Black Prairie, the Chunnennuggee Hills, and the flood plains (fig. 2).

There are two terraces in Lowndes County. The lower terrace ranges in altitude from 150 to 220 feet above sea level. It is adjacent to the Alabama River and covers the northern part of the county, extending south approximately to U. S. Highway 80 (fig. 2). The lower part of that terrace is inundated during flood stages of the Alabama River. The higher terrace, which is generally more than 400 feet above sea level, is present only as isolated remnants near the towns of Lowndesboro, Benton, and Collirene (fig. 2).

The Black Prairie, generally known as the "Black Belt," has a moderately rolling terrain and a surface characterized by black soil. It lies south of the terraces and covers the middle half of the county, except in the flood plain of Big Swamp, Steep, and Pinchony Creeks.

The Chunnennuggee Hills are in the outcrop area of sand, clay, chalk, and limestone of the Ripley formation, Prairie Bluff chalk, Providence sand, and Clayton formation. They are characterized by steep-sided hills and deep, narrow ravines. At the north, the hills are bounded by an east-trending cuesta that crosses the county. A second cuesta or ridge is formed by the outcrop of the Providence sand in the southeastern part of the county. The altitude of the Chunnennuggee Hills ranges from 350 to 500 feet above sea level.

The flood plains in the valleys of Big Swamp, Steep, and Pinchony Creeks extend from the Chunnennuggee Hills in the southern part of the county across much of the Black Prairie and the terraces to the Alabama River. A large part of the flood-plain area is swampy and is useful mainly for timber and as pasture. Flood plains along Dry Cedar and Mussel Creeks are not extensive and are not shown on figure 2.

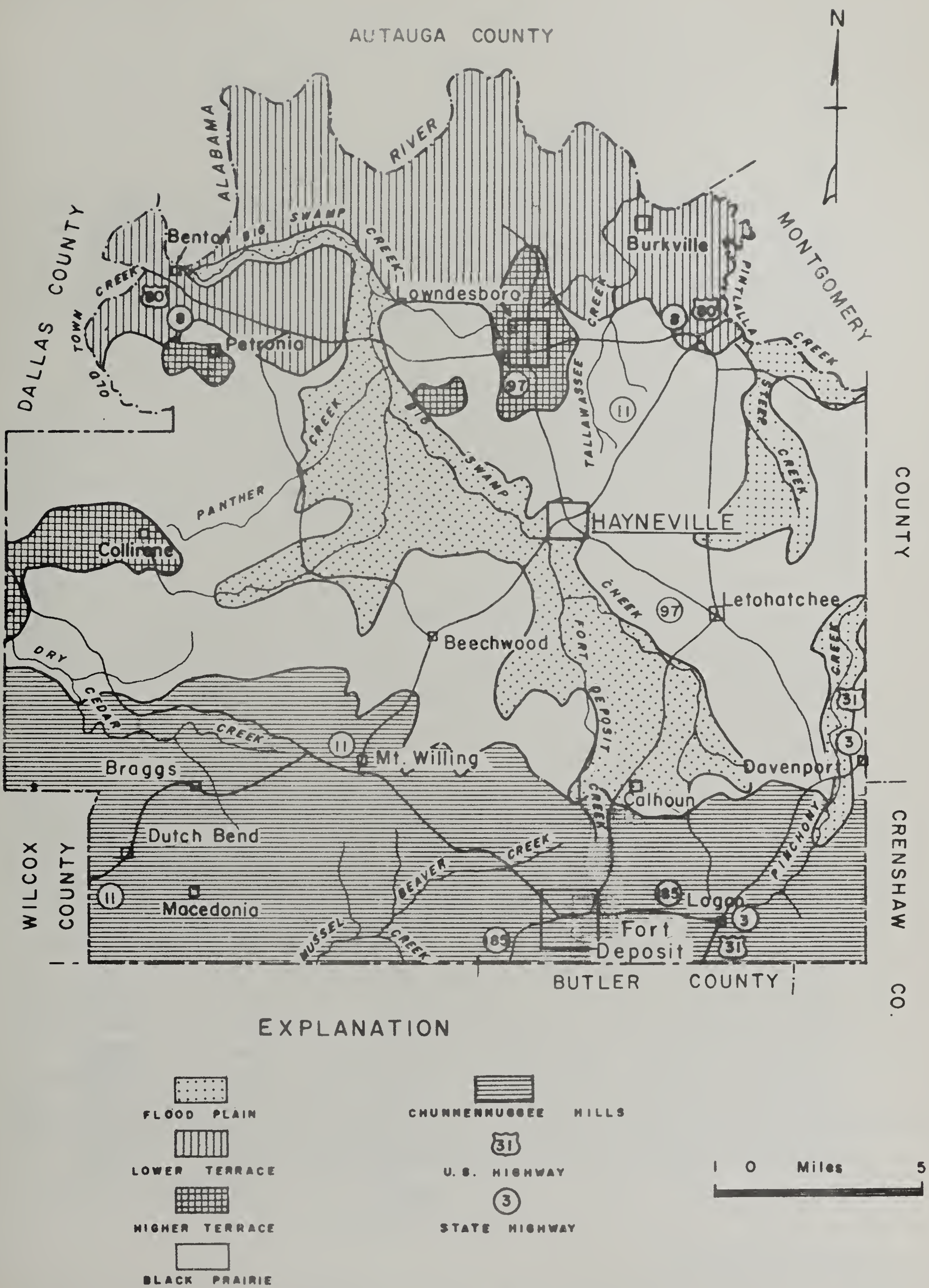


Figure 2.- Map of Lowndes County, Ala., showing physiographic divisions.

Drainage

Big Swamp Creek and its tributaries constitute the chief drainage system within the county. Big Swamp Creek heads in the Chunnennuggee Hills in southeastern Lowndes County and flows northwestward to join the Alabama River near Benton. As it receives very little ground-water discharge, its flow is small except when rainfall is heavy in the winter.

Steep Creek heads east of Hayneville and flows northeastward to discharge into Pintlalla Creek in the northeastern part of the county. Pinchony Creek heads in the vicinity of Logan and drains northeastward into Pintlalla Creek in Montgomery County. Tallawassee Creek flows northward from near Hayneville to discharge into the Alabama River in the vicinity of Burkville. Dry Cedar Creek flows westward from near Mount Willing and Braggs into eastern Dallas County.

The Chunnennuggee Hills constitute a drainage divide trending westward from Logan through Fort Deposit and the community of Macedonia. Mussel Creek, which heads near Fort Deposit, and Indian Creek, which heads near the communities of Macedonia and Dutch Bend, drain southward and westward into Dallas and Butler Counties.

ROCK FORMATIONS AND THEIR WATER-BEARING PROPERTIES

Formations that are exposed in Lowndes County range in age from Late Cretaceous to Recent and consist chiefly of clay, chalk, limestone, marl, sand, and gravel. These include the Mooreville and Demopolis chalks, the Ripley formation, the Prairie Bluff chalk, and Providence sand of Late Cretaceous age, the Clayton formation of Tertiary age, and the terrace deposits of Pleistocene age and alluvial deposits of Pleistocene and Recent age (fig. 3). The Upper Cretaceous and Tertiary rocks dip south and southwest at about 30 to 50 feet per mile and strike west and northwest, respectively. These beds are underlain by clay, shale, and sand of the Eutaw formation and the Tuscaloosa group of Late Cretaceous age which crop out north of Lowndes County. A basement complex consisting of schist, slate, and phyllite is present below the Cretaceous deposits at a depth of about 1,300 feet below the land surface in the northern part of the county and about 2,500 to 3,000 feet below the land surface in the southern part (pl. 2).

Note: Modified from Alabama Geol. Survey Bull. 48, pl. I.

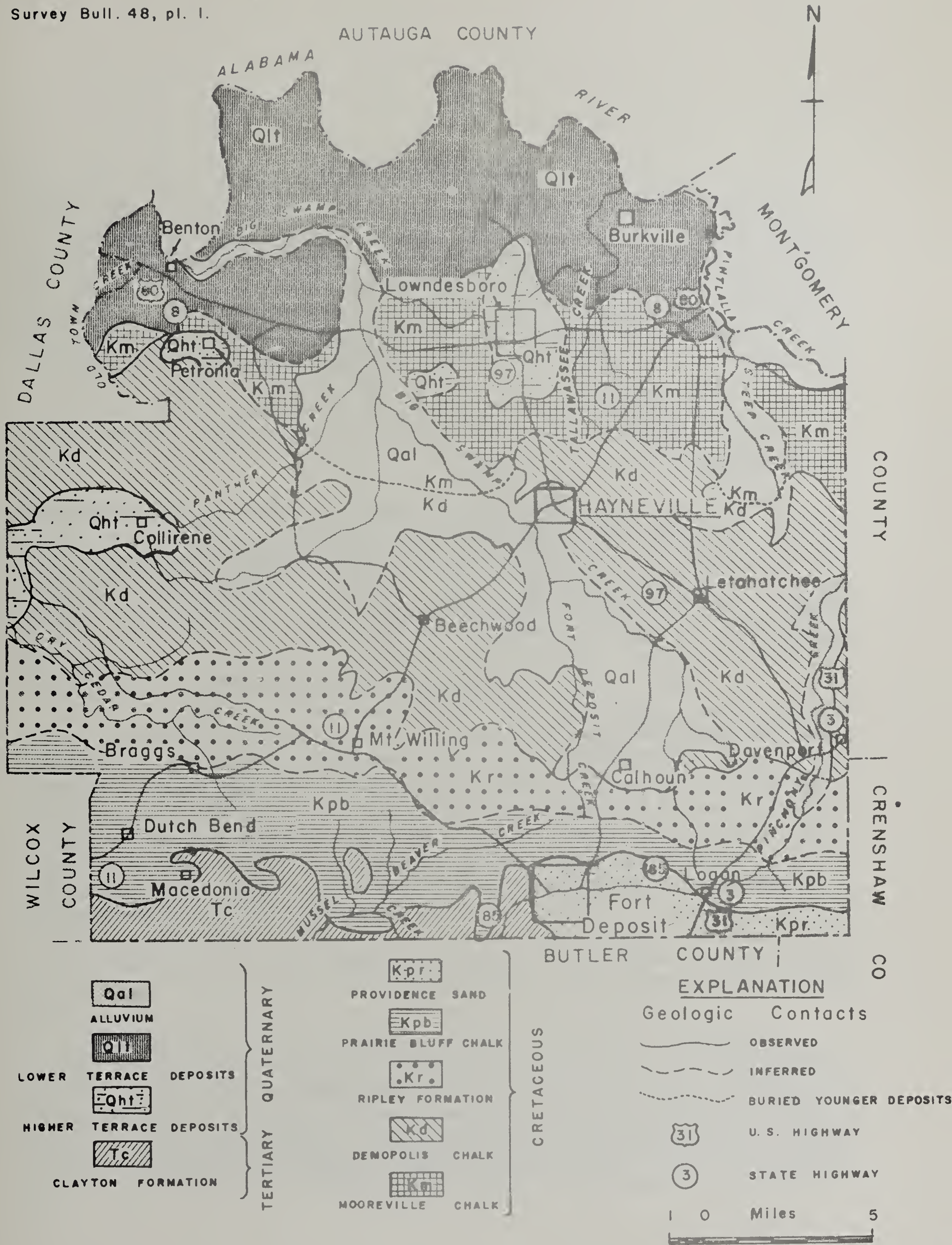


Figure 3.- Map of Lowndes County, Ala., showing general geology.

Cretaceous System

The Tuscaloosa group unconformably overlies the crystalline rocks and crops out about 15 miles north of Lowndes County in a northwestward trending belt that extends across the State. It is divided into the Coker and Gordo formations and dips toward the south and southwest at about 35 to 40 feet per mile. The Coker and Gordo formations were 540 to 355 feet thick, respectively, in a test well drilled by the city of Montgomery at the boundary between Lowndes and Montgomery Counties, near the Alabama River. In an oil test well (well S-5, table 1) near Calhoun, in southern Lowndes County, the Coker formation (pl. 2) was at least 605 feet thick (its entire thickness was not penetrated), and the Gordo formation was 445 feet thick.

The Coker formation consists of light-gray medium to- coarse-grained micaceous sand interbedded with greenish-gray and white micaceous sandy clay. The sand beds have been developed in Montgomery County as a source of municipal water supply but have not been tapped by wells in Lowndes County because of their great depth below the land surface.

The Gordo formation consists of yellowish-brown to white coarse-grained quartz sand and varicolored sandy clay (table 3). It is about 700 feet below the land surface in the northern part of Lowndes County and about 2,000 feet below the land surface in the southern part. In the northern part of the county many wells are developed in the upper part of the Gordo in areas where the water in the overlying Eutaw formation has a high chloride content. In the southern part of the county, however, water in the Gordo also has a high chloride content (pl. 3) and is, therefore, not developed as a source of water supply. The municipal well at Hayneville is developed in the Gordo formation and was pumped at a rate of 125 gpm with a drawdown of 33 feet. Wells yielding 100 gpm or more of water of good quality can be developed in the Gordo formation in the northern part of the county.

The Eutaw formation crops out along the Alabama River but is covered by terrace deposits elsewhere in Lowndes County. The Eutaw unconformably overlies the Gordo formation and consists of about 350 to 500 feet of gray medium- to coarse-grained glauconitic sand interbedded with greenish-gray micaceous sandy clay (wells H-4, L-4, L-12, tables 3, 4). The Eutaw formation dips southward about 35 to 50 feet

per mile. The chloride content of the water from the Eutaw formation ranges from less than 100 parts per million (ppm) in the eastern part of the county to more than 3,500 ppm in the central part (pl. 3). The high mineralization of this water has discouraged its development except in northeastern Lowndes County. Large-capacity wells have not been developed in the Eutaw in Lowndes County, but studies made in Montgomery County (Powell, Reade, and Scott, 1957), indicate that wells yielding as much as 500 gpm might be obtained.

The Mooreville chalk, which rests disconformably on the Eutaw formation, is the oldest Cretaceous formation exposed in Lowndes County. It crops out in an eastward-trending belt across the county (fig. 3) in the northern part of the Black Prairie physiographic division. The Mooreville chalk consists of about 450 to 500 feet of calcareous clay, chalk, and marl and dips southward about 35 to 40 feet per mile. The Arcola limestone member, consisting of beds of limestone separated by sandy clay and ranging in total thickness from 15 to 30 feet, occurs at the top of the Mooreville chalk. Its upper surface provides an excellent horizon for mapping the contact between the Mooreville and the overlying Demopolis chalk. The Mooreville chalk is relatively impermeable and is not known to yield water in usable quantities.

The Demopolis chalk crops out immediately south of the Mooreville in an eastward-trending belt 10 to 12 miles wide (fig. 3) in the southern part of the Black Prairie physiographic division. It dips southward at the rate of about 35 feet per mile and consists of 350 to 400 feet of calcareous clay and chalk grading upward into calcareous sandy clay. A bed of bentonite occurs in the upper part of the Demopolis near Davenport. The Demopolis is relatively impermeable and is not known to yield water in usable quantities.

The thickness and lithology of the Demopolis and Mooreville chalks and the Eutaw and Gordo formations, and the electric log and construction diagram for test well L-13 are shown in plate 4.

The Ripley formation crops out across the county in an eastward-trending belt 1 to 3 miles wide (fig. 3) in the northern part of the Chunnennuggee Hills physiographic division. It consists of 150 to 200 feet of calcareous sandy clay, medium- to coarse-grained quartz sand, and fossiliferous sandstone, and dips southward at a rate of 35 to 40 feet per mile. Sand beds in the Ripley supply water to municipal wells at Fort

Deposit and to domestic and stock wells in southern Lowndes County. Wells developed in the Ripley in the valley of Indian Creek, (pl. 1) in extreme southwestern Lowndes County, flow 1 to 5 gpm and are used primarily for watering livestock. Yields from wells developed in the Ripley formation range from about 5 gpm from domestic and stock wells to about 50 gpm from the Fort Deposit municipal wells. The water from the Ripley is hard, ranging in hardness from 120 to more than 700 ppm.

The Prairie Bluff chalk crops out in southern Lowndes County in an eastward-trending belt 3 to 5 miles wide, south of and parallel to the outcrop of the Ripley formation. It consists of chalk, calcareous clay, and limestone. It is 100 to 125 feet thick in the western part of the county but thins to 75 to 100 feet in the eastern part. Because of its low permeability the Prairie Bluff is not considered a potential source of water supply in Lowndes County.

The Providence sand unconformably overlies the Prairie Bluff chalk in southeastern Lowndes County and is exposed in an area 3 to 6 miles wide from Fort Deposit eastward into Crenshaw County. Near Fort Deposit, it grades almost imperceptibly into the upper beds of the Prairie Bluff chalk. The Providence sand in much of the county consists of limonitic micaceous sand and light-gray clay, but grades westward into calcareous sandy clay near Fort Deposit. Many shallow dug wells and some drilled wells obtain water from the Providence sand for domestic and stock use. The Providence sand is probably not capable of yielding more than 25 gpm to individual wells in Lowndes County.

Tertiary System

The Clayton formation crops out in a belt 2 to 5 miles wide along the southern boundary of Lowndes County from Fort Deposit westward through the community of Macedonia. It consists of hard calcareous sandstone and calcareous sandy clay and dips southward at a rate of 30 to 40 feet per mile. The Clayton is relatively impermeable and is not likely to be a source of water supply in Lowndes County.

Quaternary System

Pleistocene terrace deposits of the ancestral Alabama River crop out in northern Lowndes County in an area about 5 miles wide parallel to the present river. These deposits were divided by Monroe (1941) into a lower and a higher unit (fig. 3). The lower terrace extends as far south as U. S. Highway 80, which crosses the county from east to west. The lower terrace deposit consists of clay, sand, and gravel and reaches a maximum thickness of about 50 feet. Remnants of a high-

er terrace are present near Lowndesboro, Hayneville, Petronia, and Collirene (fig. 3). Its deposits are lithologically similar to those of the lower terrace but occur at altitudes of more than 400 feet instead of 150 to 200 feet as is characteristic of the lower terrace. Both terrace levels mark areas formerly occupied by channels of the Alabama River. Sand and gravel beds in the terrace deposits supply water to shallow domestic and stock wells and to private homes in the towns of Collirene, Petronia, and Lowndesboro. Wells developed in the terrace deposits in Lowndes County do not yield more than 20 gpm. In some areas in Montgomery County, however, comparable deposits are very permeable, and wells yielding more than 100 gpm have been developed.

Flood-plain deposits in the valleys of Big Swamp Creek and its tributaries and of Steep and Pinchony Creeks range in age from Pleistocene to Recent. They consist of sandy clay and sand and have a maximum thickness of about 30 feet. Sand beds in these deposits supply water to domestic and stock wells.

GROUND WATER

Source

Ground water is the water below the land surface that occurs in a zone where the enclosing material is fully saturated. The top of the saturated zone is called the water table, and its position is shown by the level at which water stands in nonartesian wells. Only that part of the subsurface water that lies in the zone of saturation can be pumped from wells or will flow from springs. Ground water is derived from precipitation, and in Alabama the precipitation is principally rain. A part of the precipitation flows into streams and lakes as direct runoff, a part returns to the atmosphere through evaporation and transpiration, and a part seeps downward through the soil and rocks to become ground water. The ground water moves from higher to lower levels, generally but not necessarily down the dip of the bedding, later to be discharged into bodies of surface water by seepage or into the atmosphere by evaporation or through transpiration by plants.

Water seeping down through the soil first enters a zone of aeration (fig. 4), which lies between the land surface and the zone of saturation. A part of the water entering the zone of aeration is used to satisfy soil-moisture requirements, being held in this zone by molecular forces which counteract the force of gravity, and a part seeps to the water table and into the zone of saturation. All openings in the zone of saturation are filled with water, and it is the water in this zone that can be obtained by wells and that flows from springs.

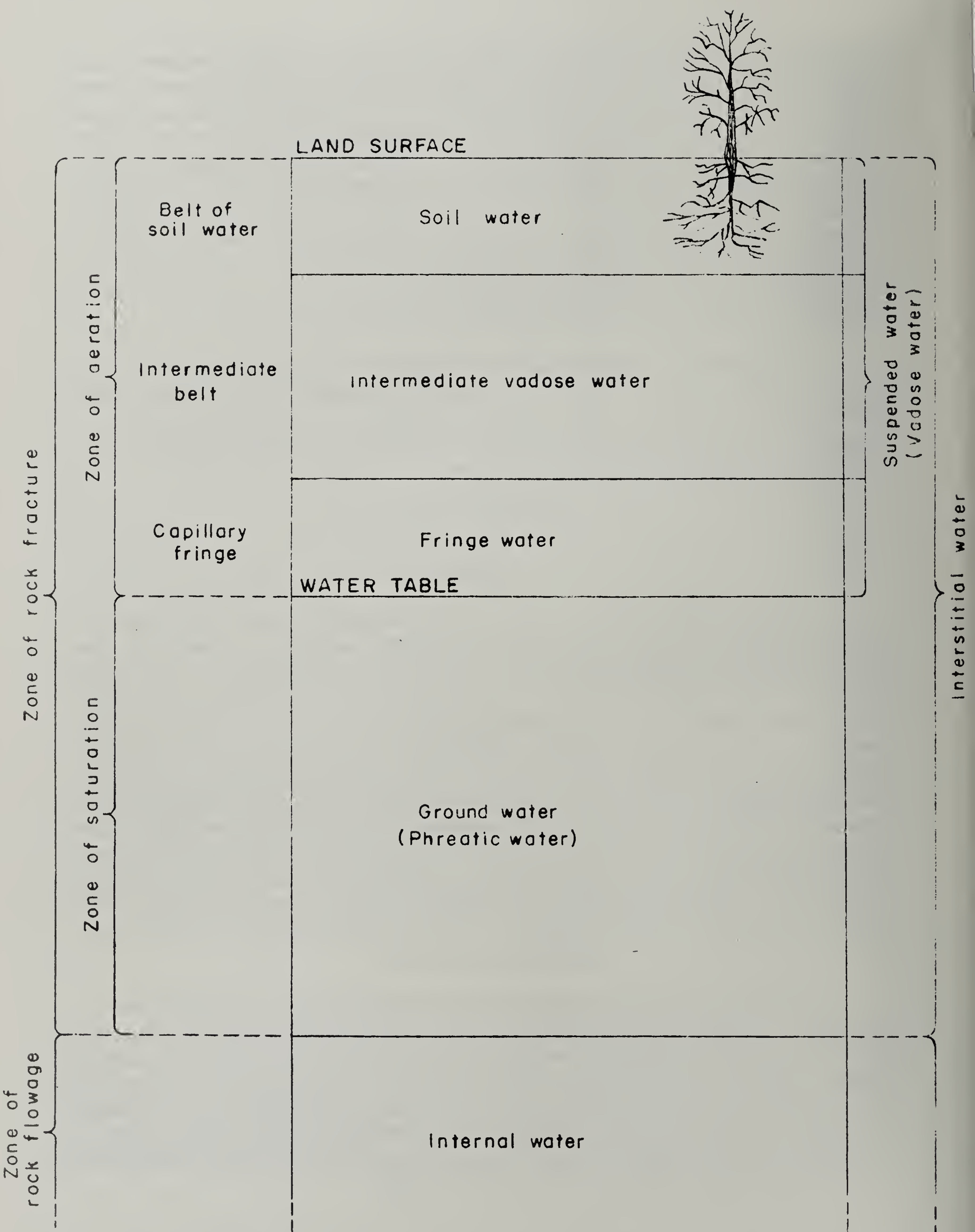


Figure 4.-Diagram showing divisions of subsurface water. (After O. E. Meinzer)

Occurrence and Storage

Ground water occupies pores, fractures, and solution openings in the rocks. The size, shape, and distribution of the openings in the rocks vary considerably from place to place and from rock type to rock type, and they control the storage and movement of ground water.

The porosity of a rock is its property of containing voids or open spaces. Porosity is the ratio, expressed as a percentage, of open space in a rock to its total volume. The porosity is influenced by the size, shape, and arrangement of particles, by the degree of sorting, compaction, and cementation of the particles, and by the amount of fracturing, solution, and recrystallization of the rock after its initial formation.

The permeability of a rock is a measure of its capacity to transmit water under a hydraulic gradient. Permeability may be expressed as a coefficient that measures the rate in gallons per day (gpd) at which water will move through a cross section of the rock 1 foot square, under a hydraulic gradient of 1 to 1 (loss in head of 1 foot for each foot of travel of the water, whatever the direction of movement). Clay generally has a high porosity but a low permeability because its pore spaces, though numerous, are very small. A sand or gravel may have a lower porosity than clay but have a high permeability because the interconnected open spaces are large. Permeable rock zones through which ground water moves freely enough to supply wells are called aquifers.

Water-Table and Artesian Conditions

The water table is defined as the upper surface of the zone of saturation except where that surface is formed by the bottom of a bed of clay or other relatively impermeable material which confines the water under artesian pressure (fig. 5). Unconfined water in the zone of saturation moves slowly through the rocks in a direction determined by the slope of the water table. The water table is not a level or stationary surface; variations from place to place and from time to time in its shape and elevation occur as a result of such factors as the permeability and structure of the rocks, variations in the rate of withdrawal of water from wells and springs, and variations in rainfall which affect the rate of recharge.

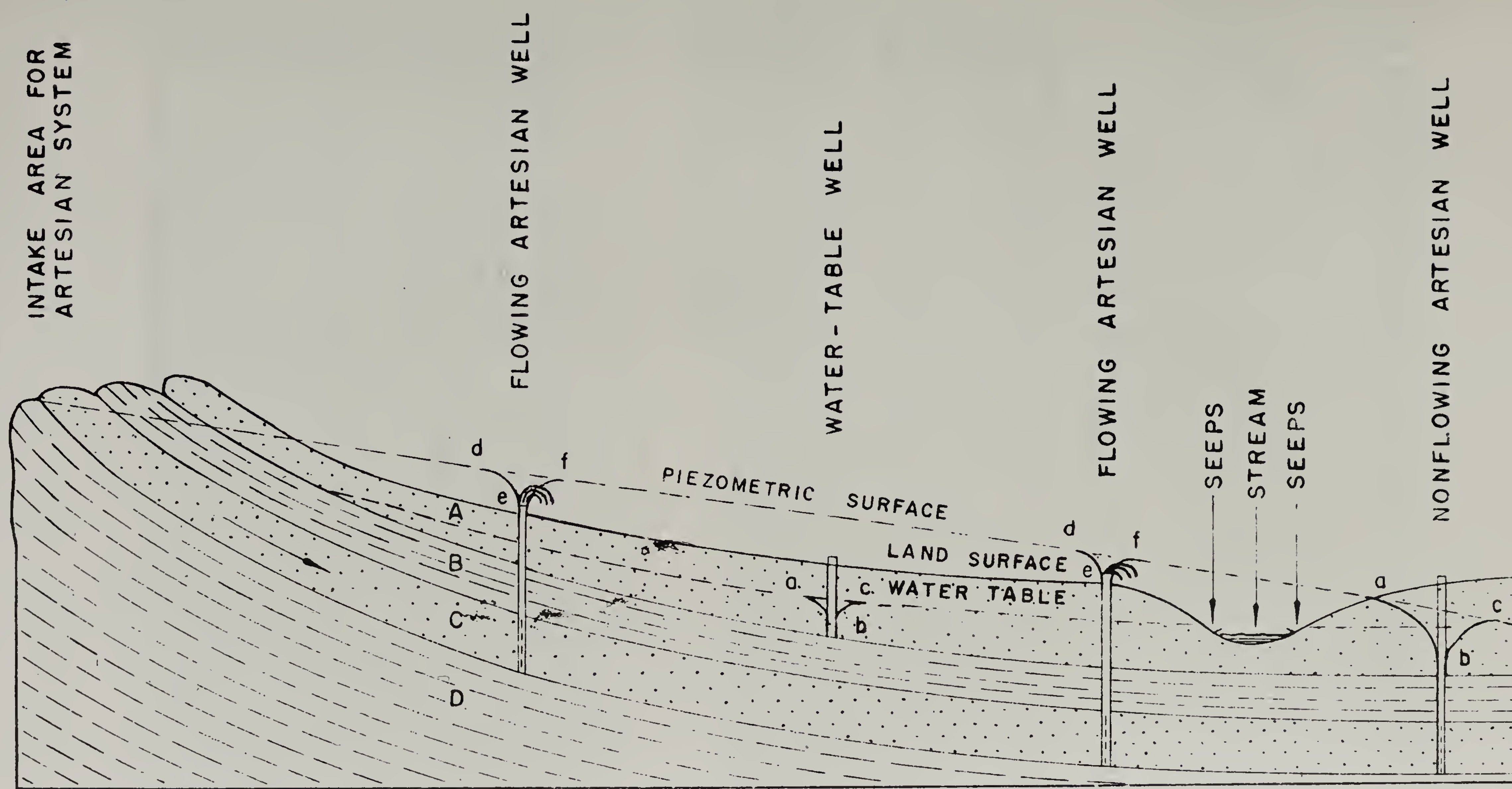
Water in an aquifer under artesian pressure is restricted in direction of movement by the relatively impermeable overlying and underlying rocks (the confining beds, fig. 5). Rainfall and runoff must seep into the aquifer where it is exposed at the land surface and percolate down gradient to become confined between relatively impermeable beds of clay, sandy clay, chalk, marl, or similar materials. The pressure exerted on ground water in a confined aquifer by the weight of water at higher levels in the same aquifer is known as hydrostatic pressure.

When a well penetrates a confined aquifer downdip from its intake area, the hydrostatic pressure causes the water to rise above the bottom of the confining layer. The imaginary surface to which water will rise in tightly cased artesian wells is called the piezometric surface. An artesian well will flow if the hydrostatic pressure is great enough and the land surface is low enough. Figure 5 shows the requisite conditions for water-table and artesian systems.

Water-table and artesian systems in Lowndes County

The water from the terrace deposit and Recent alluvium and in the area of outcrop of the sand beds of the Ripley formation and Providence sand is under water-table conditions (fig. 3). Shallow dug, bored, and drilled wells in these beds supply water to about 25 percent of the rural population of the county and to the towns of Lowndesboro, Petronia, Collirene, Mount Willing, and Sandy Ridge. The water levels in shallow wells respond quickly to precipitation, and during periods of drought many become dry because the water table declines below the bottom of the wells.

The chief artesian aquifers in Lowndes County are those in the Gordo, Eutaw, and Ripley formations. These beds dip southward at a rate of about 35 to 40 feet per mile. Artesian wells have been drilled to the Gordo and Eutaw formations throughout Lowndes County and to the Ripley formation in the southern part of the county. Flowing wells have been obtained in the Gordo and Eutaw formations in the lowland areas adjacent to the Alabama River and its tributaries and in the Ripley formation in the valley of Indian Creek (pl. 1). Each year approximately 60 million gallons of water (115 gpm), enough to supply the town of Fort Deposit for 2 months or the town of Hayneville for 4 months, is wasted from flowing wells in the county.



A. Permeable surficial material B. Upper confining bed C. Artesian aquifer D. Lower confining bed

abc Cone of depression caused by pumping a water-table or a nonflowing artesian well

def Cone of depression caused by natural discharge from flowing artesian well

Figure 5. - Schematic diagram showing artesian and water-table conditions.

Flows from wells in the Gordo formation range from 25 to 50 gpm. Well D-5 had a flow of 40 gpm and a pressure head of 26.1 feet above the land surface on March 7, 1955. Wells flowing 2 to 15 gpm are obtained from the Eutaw formation. In the area in which it is possible to obtain flowing wells from the Eutaw formation, the water is high in chloride content and is used for watering stock. Flows of 1 to 5 gpm are obtained from wells in the Ripley formation in a small area in the extreme southwestern part of Lowndes County. Most of the flowing wells that tap the Ripley are used for stock.

Water-Level Fluctuations and Their Significance

Water levels can often be correlated with recharge or lack of recharge, artificial withdrawals by pumping, variations in atmospheric pressure, ocean and earth tides, and earthquakes. Shallow water-table wells and springs respond with rising water levels or increased spring flows within a few hours or days after precipitation and with declining water levels or decreased spring flows almost as quickly after precipitation and direct runoff cease. However, the fluctuations of water levels in deep artesian wells in Lowndes County can not be directly correlated with rainfall because the influence of rainfall on the intake area (fig. 5) tends to dissipate across the long distance between the wells and the intake area and to be hidden by fluctuations due to other causes.

QUALITY OF WATER

Water that falls as rain or snow contains only small quantities of dissolved mineral matter, but upon reaching the ground it begins to dissolve minerals from the soil and rocks. The amount and kind of minerals dissolved in ground water varies greatly from place to place, depending upon such factors as the amount and type of organic material in the soil, the type of rocks through or over which the water moves, the length of time the water is in contact with the soil and rocks, and the temperature of the water. Some rocks contain easily soluble salts, and, as a result, water passing through or over them will become highly mineralized. Other rocks consist of relatively insoluble minerals, and the water passing through or over them will tend to dissolve relatively small amounts of mineral matter. Calcium is present in nearly all ground water because it is easily dissolved from deposits of limestone, gypsum, dolomite, and other rocks. Other constituents common-

ly found in ground water are sodium, potassium, magnesium, iron, manganese, bicarbonate, sulfate, chloride, fluoride, nitrate, and silica.

The chemical character of water may restrict its use for municipal, industrial, and domestic supply, or for irrigation. The exact limits beyond which water cannot be used for a particular purpose are not easily defined; however, water for municipal and domestic supplies should, insofar as possible, conform to the standards of the United States Public Health Service (1946). According to these standards, iron and manganese together should not exceed 0.3 ppm; magnesium should not exceed 125 ppm; chloride should not exceed 250 ppm; sulfate should not exceed 250 ppm; and dissolved solids preferably should not exceed 500 ppm, although if such water is not available dissolved solids of 1,000 ppm may be permitted. Fluoride in drinking water in excess of 1.5 ppm may cause mottled enamel on children's teeth if the water is used during the period of calcification of the teeth - that is, roughly during the first 6 to 8 years of life (Dean and others, 1942).

The hardness and chloride content of water from most of the wells inventoried were determined (table 1). The results of partial chemical analyses of water from all drilled wells used for municipal, industrial, and school supplies and from representative private supplies are presented in table 2.

The results of the chemical analyses indicate that:

1. The chloride content of water from wells tapping the Gordo formation ranges from 2 ppm in the northern half of the county to more than 5,000 ppm in the southern half (tables 1, 2; pl. 3). In general, north of a line connecting the towns of Collirene, Gordonsville, Beechwood, and Hayneville, the water from the Gordo formation is low in chloride content; south of this line, downdip in the formation, the water becomes salty within a few miles (pl. 3). There is very little information on the quality of the water from the Gordo in the area east of Hayneville and of Calhoun (pl. 1), as no wells have been drilled. A school well at Calhoun and a test well at the city of Fort Deposit encountered salty water in the Gordo, but the electric log of well S-5, an oil test well at the C. S. Wright farm about 4 miles north of Calhoun, suggests that, at that place, the water in the Gordo and Coker formations is fresh to a depth of about 1,950 feet.

2. The chloride content of water from wells developed in the Eutaw formation ranges from less than 100 ppm in the extreme northwestern and eastern parts of the county to more than 3,500 ppm in the central and southern parts (tables 1, 2; pl. 3). It is generally 200 ppm or less in the eastern part of the county, east of a line roughly connecting the towns of Sandy Ridge, Letohatchee, and Monack, and in the northwestern corner of the county, north and northeast of the town of Benton. West of that line, and east of the town of Benton, the chloride content of the water increased rapidly and within a few miles the water becomes too salty for most purposes (pl. 3). The area in which the water in the Eutaw formation is fresh has the shape of a crescent, the water becoming increasingly mineralized inward from the rim of the crescent (pl. 3). This may be caused either by geologic structure or by a residuum of connate water in the rocks.

3. The chloride content of water from wells developed in the Ripley formation ranges from 9 to 40 ppm (tables 1, 2). The water from the Ripley is of the calcium magnesium bicarbonate type, and ranges from 208 to 396 ppm in bicarbonate concentration in samples from eight wells for which chemical analyses are available (table 2). The hardness ranges from 46 to 700 ppm and the water is sufficiently mineralized, in some areas, to have a disagreeable taste.

The fluoride contents of water from wells tapping the Gordo, Eutaw, and Ripley formations range from 0.0 to 0.1, 0.0 to 6.5, and 0.0 to 0.4 ppm, respectively (table 2). Figure 6 is a map showing by isofluors (lines connecting points of equal fluoride concentration) the fluoride content of water from wells drawing water from the Eutaw formation.

4. During the past 25 years increased attention has been directed to the fluoride concentration of public water supplies in the United States, and many municipalities are presently introducing fluoride into their drinking-water supplies to inhibit tooth decay. Dean and others (1942) state, "Relatively low dental caries experience rates are found associated with the use of domestic waters whose fluoride (F) concentrations have a range of 1 or more parts per million." Dean points out that, although small amounts of fluoride in water may aid the development of strong, sturdy teeth that resist decay, excessive amounts of fluoride may have toxic effects on body bone structure and may cause mottled enamel of teeth of children who use the water from birth to about 8 years of age.

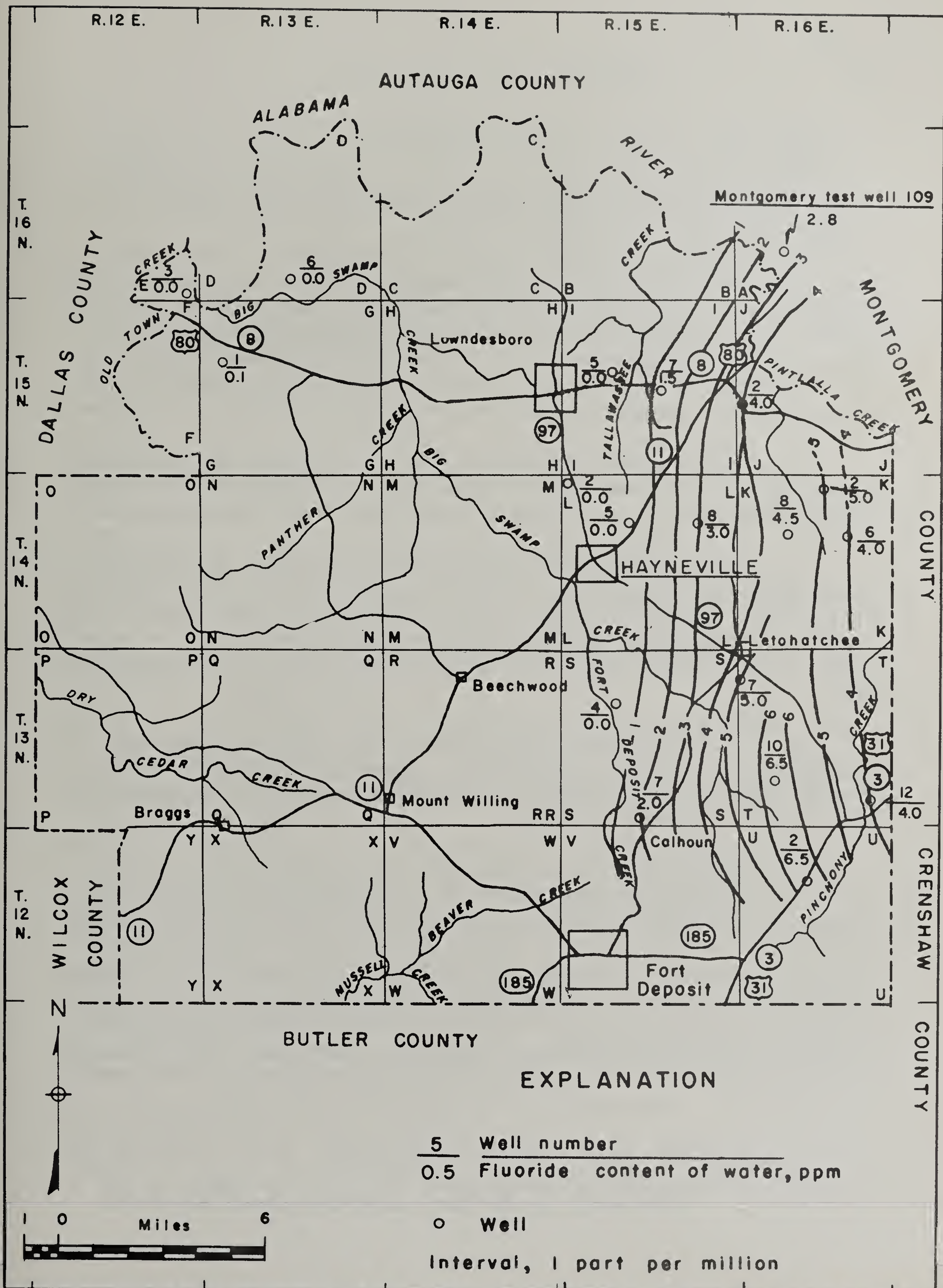


Figure 6 – Isofluor map of Eutaw formation, Lowndes County, Ala.

CONCLUSIONS

The results of the reconnaissance ground-water investigation of Lowndes County lead to the following preliminary conclusions:

1. Lowndes County is underlain by deposits of sand, gravel, marl, clay, and chalk of Late Cretaceous age that characteristically dip southward at the rate of 35 to 40 feet per mile. The principal sources of water in the county are drilled wells tapping beds of sand in the Gordo, Eutaw, and the Ripley formations. Water for domestic and stock supplies is obtained from shallow dug, bored, and drilled wells in the outcrop area of the Providence sand and the terrace and alluvial deposits.

2. Wells yielding 100 gpm or more can probably be developed in more permeable zones within the Gordo and Eutaw formations, and wells yielding from 50 to 100 gpm in sandy beds of the Ripley formation.

3. The water from the Gordo formation south of Collirene, Gordonsville, and Beechwood, and from the Eutaw formation west of Lowndesboro, Hayneville, and Calhoun contains excessive amounts of chloride. The water from the Ripley formation is hard, and, in some areas, is sufficiently mineralized to give the water an objectionable taste.

4. Fluoride occurs in water from the Eutaw formation east of Lowndesboro, Hayneville, and Calhoun. The water from wells developed in the Eutaw at Sandy Ridge and about 3 miles south of Letohatchee has a fluoride content of 6.5 ppm.

5. Conditions in the northern part of Lowndes County are favorable for the development of moderate to large quantities of ground water from the Gordo formation, as in that area, the Gordo is both permeable and relatively near the surface. Conditions in the area east of Lowndesboro, Hayneville, and Calhoun are favorable for the development of wells capable of supplying more than 100 gpm from beds of sand in the Eutaw formation. In some areas adjacent to the Alabama River conditions are favorable for the development of wells for municipal, industrial, and irrigation supplies in the permeable terrace deposits of Quaternary age.

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Table 1.--Records of wells in Lowndes County, Alabama

Well no.: Numbers correspond to those shown on plate 1 and table 2; asterisk indicates chemical analysis given in table 2.
Type of well: B, bored; D, drilled; Dr, driven; Du, dug.
Depth of well and water level: Depths and water levels shown in feet are reported; those in feet and tenths are measured.

Method of lift: C, cylinder; J, jet; M, manual; T, turbine.
Use of water: D, domestic; Ind, industrial; N, none; PS, public supply; S, stock; T, test well.
Altitude: Altitude of land-surface datum determined by aneroid barometer.
Water-bearing formations: Kg, Gordo formation; Ke, Eutaw formation; Kr, Ripley formation; Qht, higher terrace deposits; Qlt, lower terrace deposi

Well no.	Owner	Driller	Type of well	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Altitude of land surface datum (ft.)	Water level: Above (+) or below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Field determinations: Temperature (°F)	Field determinations: Chloride (ppm)	Field determinations: Hardness as $CaCO_3$ (ppm)	Remarks
A-1	C. S. Athey..........	....	B	37.5	4	Qlt	155	35.0	10-20-54	J	D,S	......	....	.....	Insufficient water supply for requirements.
B-1	A. P. Robinson.......	....	D	202	4	Ke	215	90	10- -54	C	D,S	......	351	58	
B-2	Calhoun Store	....	Dr	15	1¼	Qlt	151	12	10- -54	C	D	......	....	.....	Casing: 1¼-inch from surface to 12 feet; screen from 12 to 15 feet.
B-3	C. A. Pate...........	O. B. Radford...	D	400	4	Ke	144	11	9- -55	C	....	......	6	46	
B-4	M. Robinson	.......do.......	D	620	6	Kg	145	+6.5	9-15-55	.....	D,S	69	0	16	Estimated flow 5 to 10 gpm on 9-15-55
C-1	Pettus and Woodruf....	.......do.......	D	....	4	Ke	160	5	10- -54	C	S	......	....	.....	
D-1	A. E. Henderson.......	--Kirker........	D	350	4	Kg	.....	Flows	10-14-54	....	S	77	2	34	Estimated flow 10 gpm on 10-14-54.
*D-2	Dr. -- Glass.........	O. B. Radford...	D	600	4	Kg	......	+10-12	10- -54	C	D,S	72	2	30	Estimated flow 15 to 20 gpm on 10-12-54. Flow reported approximately same as in 1911.
D-3	Cecil Lane...........	.......do.......	D	764	4	Kg	......	+25	10- -54	C	D,S	77	2	30	Irrigates large lawn and supplies swimming pool.
D-4	..........do.........	.......do.......	D	400	6	Ke	......	+3	10- -54	....	S	......	1,150	646	
*D-5	D. P. and Cecil Lane..	.......do.......	D	750	4,2	Kg	......	+26.1	3- 7-55	....	D,S	78	2	15	
*D-6	Cecil Lane...........	.......do.......	D	400	5	Ke	......	+0.5	10- 7-54	....	S	71	1,330	675	Casing: 5-inch from surface to 30 feet. Not cased from 30 to 400 feet. Estimated flow 3 gpm on 10-7-54.
D-7	..........do.........	.......do.......	D	400	4	Ke	......	+0.3	10- 7-54	....	S	71	1,600	812	Casing: 4-inch from surface to 30 feet. Not cased from 30 to 400 feet. Estimated flow 1 gpm on 10-7-54.
D-8	..........do.........	.......do.......	D	400	4	Ke	......	0.2	10- 7-54	....	S	71	....	.....	Casing: 4-inch from surface to 30 feet. Not cased from 30 to 400 feet.
E-1	Beers Estate.........	.......do.......	D	909	4	Kg	......	....	....	C	Ind D	......	74	62	Supplies cotton gin.

E-2	...do...	...do...	D	446	4	Ke	...	...	...	C	Ind D	...	67	66	Do.
*E-3	Staggers and Beers...	...	D	400	5	Ke	...	Flows	3-15-55	...	S	68	185	84	Measured flow 15 gpm on 3-15-55.
F-1	Benton Gin Co...	...	D	400	6	Ke	...	+0.1	2-15-55	...	D	68	479	290	Measured flow 2 to 3 gpm on 2-15-55. Measured flow 5.8 gpm in 1940.
F-2	J. O. Richer, Sr...	O. B. Radford...	D	425	4	Ke	...	Flows	9- 9-55	...	S	69	315	138	Estimated flow 5 to 10 gpm on 9-9-55.
F-3	G. L. Edwards...	...do...	D	450	4	Ke	...	Flows	9- 9-55	...	S	69	142	86	Estimated flow 5 to 10 gpm on 9-9-55.
*G-1	Mrs. Mary T. Webster.	...do...	D	400	4	Ke	...	Flows	3-23-55	...	S	...	670	240	Measured flow 3 gpm on 3-23-55.
G-2	...do...	...do...	D	420	6	Ke	...	Flows	3-23-55	...	S	...	...	...	Estimated flow 2 to 3 gpm on 3-23-55.
G-3	...do...	...do...	D	420	4	Ke	...	+ 4.9	3-23-55	...	S	...	939	352	Measured flow 10 gpm on 3-23-55.
G-4	W. E. Mealing...	...	Dr	25	36	Qlt	...	...	...	C	D,S	...	...	...	Concrete tile curbing to 25 feet.
*G-5	A. A. Bryant...	Burrell Drilling Co...	D	600	4	Kg	...	...	...	T	D,S	...	8	18	Supplies several families.
H-1	G. T. Meadows	James H. Stoudenmire...	D	1,020	4	Kg	...	85	10- -54	C	D,S	...	2	26	Supplies dairy.
H-2	...do...	-- Nolen...	D	300	2½	Ke	...	...	...	...	N	...	...	...	Water reported salty.
H-3	O. E. Browder	...	D	400	4	Ke	266	...	...	C	N	...	3,490	1,700	Replaced by well H-4. Water reported salty.
*H-4	...do...	W. J. Bozeman...	D	833	4	Kg	256	90	11- -55	T	D,S	...	2	24	Casing: 4-inch from surface to 192 feet; 3-inch from 192 to 797 feet; 2-inch from 197 to 809 feet; 3-inch screen from 809 to 824 feet. See sample and driller's logs. Electric log shown on plate 2.
H-5	J. A. Calahan...	Burrell Drilling Co...	D	...	4	Kg	408	...	...	C	D,S	...	6	18	
H-6	E. T. Lingham...	-- Smitherman...	Dr	18	36	Qht	401	9.5	10-14-54	C	D	...	...	...	Concrete curbing to 17.5 feet.
*H-7	...do...	W. J. Bozeman...	D	1,100	4	Kg	...	...	...	T	D,S	...	9	32	
H-8	E. J. Eiland...	...do...	D	1,000	4	Kg	...	...	...	C	S	...	...	...	
I-1	R. O. Loftin...	R. O. Loftin...	Dr	28	36,1¼	Qlt	215	19.0	10-20-55	C	D,S	...	...	...	Concrete tile curbing to 20 feet. Casing: 1¼-inch from surface to 25 feet; 1¼-inch screen from 25 to 28 feet.
I-2	J. D. Haigler...	...	Du	60	36	Qlt	180	11.5	10-20-55	M	D,S	...	...	...	
I-3	Sam McQueen...	...	D	...	4	Ke	232	...	...	M	D,S	69	364	90	

Table 1.--Records of wells in Lowndes County, Alabama--Continued

Well no.	Owner	Driller	Type of well	Depth of well (ft.)	Diameter of well (in)	Water-bearing formation	Altitude of land surface datum (ft.)	Water level: Above (+) or below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Field determinations: Temperature (°F)	Field determinations: Chloride (ppm)	Field determinations: Hardness as $CaCO_3$ (ppm)	Remarks
I-4	M. Meadows..........	Burrell Drilling Co...........	D	....	4	Ke	253	....	....	C	S	....	515	242	
*I-5	Carr and Rothchild...	....	D	400	4	Ke	259	....	....	C	D,S	....	975	155	Casing: 4-inch from surface to 70 feet. Not cased from 70 to 400 feet.
I-6	C. L. Moseman........	....	D	400	4	Ke	228	85	11- -54	C	D,S	....	494	86	
*I-7	J. H. Allport........	....	D	450	4	Ke	227	....	....	C	D,S	....	410	51	
I-8	Cecil Liles..........	....	D	400	4	Ke	220	....	....	C	S	....	......	......	
I-9	J. F. Hurt..........	....	D	400	4	Ke	221	104	11- -54	C	D,S	....	327	68	Casing: 4-inch from surface to 21 feet. Not cased from 21 to 400 feet.
I-10	Neil Robinson........	O. B. Radford..	D	495	4	Ke	253	110	3- -55	C	D,S	70	382	60	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 495 feet. Supplies dairy.
I-11	Leman Emmerson.......	....	D	400	4	Ke	204	60	10- -54	C	D,S	......	....	......	
I-12	S. A. Pylant.........	....	D	350	4	Ke	221	....	....	C	N	......	....	......	
*I-13	..........do.........	Burrell Drilling Co..........	D	350	4	Ke	228	....	....	C	D,S	......	238	62	Casing: 4-inch from surface to 60 feet. Not cased from 60 to 350 feet.
I-14	M. I. Smith..........	....	D	310	4	Ke	230	80	1950	C	D,S	......	262	94	
*I-15	Dixon Estate and Foremost Dairies.......	....	D	420	4	Ke	212	80	7- -54	C	Ind	......	382	100	Supplies milk-processing plant.
I-16	Jack Portis..........	Burrell Drilling Co..........	D	273	4	Ke	209	....	....	C	D	......	266	100	Supplies 15 to 20 families.
I-17	G. K. Gaston.........	....	D	....	4	Ke	238	....	....	C	D,S	......	352	64	
I-18	George R. McCurdy....	-- Smitherman..	Du	52	28	Qht	381	48	2- -55	C	D,S	......	....	.....	Complete tile curbing to 50 feet. Supplies dairy.
J-1	Tom Jones...........	Alabama Drilling Co..........	D	295	4	Ke	213	....	....	C	D	......	283	78	

*J-2	C. Danby............	......do.......	D	265	4	Ke	190	....	....	C	D	......	285	64	
J-3	Louise Champion......	Jesse Johnson..	D	560	4	Ke	218	75	11- -54	C	D,S	......	221	42	
J-4	L. R. Haigler........	Burrell Drilling Co............	D	400	4	Ke	220	....	....	C	S	......	283	48	Casing: 4-inch from surface to 21 feet. Not cased from 21 to 400 feet. Supplies several families.
J-5	O. C. Helms..........	....	D	....	4	Ke	202	....	....	C	D,S	......	166	44	
J-6	M. L. Hand..........	Jesse Johnson..	D	330	4	Ke	205	....	....	C	D,S	......	125	60	
J-7	N. J. Bell Estate....	....	D	500	4	Ke	196	....	....	M	D,S	......	132	54	
J-8	Charles Sherman......	....	D	450	4	Ke	195	....	....	C	D,S	......	132	42	
J-9	Prairie Dairy........	W. J. Bozeman..	D	545	4	Ke	201	....	....	C	D,S	......	132	56	Casing: 4-inch from surface to 60 feet. Not cased from 60 to 545 feet. Known as Grassland Farm well 2.
J-10	H. M. Owen...........	....	B	450	20,4	Ke	194	68.5	12- 3-54	M	S	......	....	......	Reported drilled by slave labor prior to Civil War.
J-11	..........do.........	....	D	500	4	Ke	213	......	....	C	D,S	......	....	......	
J-12	H. B. Elijah.........	W. J. Bozeman.	D	450	6	Ke	175	70	12- -54	C	D,S	......	112	34	Known as Grassland Farm well 1.
J-13	M. A. Owen...........	....	D	475	4	Ke	197	70	12- -54	C	D,S	......	132	46	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 475 feet.
K-1	M. C. Stallworth.....	W. J. Bozeman.	D	423	4	Ke	216	....	....	C	D,S	......	149	34	Known as Grassland Farm well 3.
*K-2	Marble Stone School..	Burrell Drilling Co...........	D	380	4	Ke	180	....	....	M	PS	......	116	49	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 380 feet.
K-3	D. W. Owen...........	....	D	350	4	Ke	189	75	12- -54	C	D,S	......	67	40	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 350 feet.
K-4	Mrs. J. O. McPherson.	....	D	....	4	Ke	187	....	....	C	D,S	......	95	40	Casing: 4-inch from surface to 20 feet.
K-5	W. S. Sherwood.......	....	D	475	4	Ke	215	....	....	C	D,S	......	122	38	Do.
*K-6	B. G. Berry..........	....	D	500	4	Ke	228	100	11- -55	C	D,S	......	132	34	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 500 feet.
*K-7	G. F. McPherson......	....	D	550	4	Ke	205	....	....	C	D,S	......	118	54	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 550 feet.

Table 1.--Records of wells in Lowndes County, Alabama--Continued

Well no.	Owner	Driller	Type of well	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Altitude of land surface datum (ft.)	Water level: Above (+) or below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Field determinations: Temperature (°F)	Field determinations: Chloride (ppm)	Field determinations: Hardness as $CaCO_3$ (ppm)	Remarks
*K-8	George A. Sullivan....	O. B. Radford...	D	575	4	Ke	218	....	....	C	D,S	......	148	29	Casing: 4-inch from surface to 125 feet. Not cased from 125 to 575 feet.
K-9	J. P. Judge, Sr.......	Burrell Drilling Co............	D	550	4	Ke	203	....	....	C	D	......	166	52	
K-10	..........do..........	.......do.......	D	525	4	Ke	190	....	....	C	D,S	......	190	36	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 525 feet.
K-11	F. G. Merritt..........	O. B. Radford...	D	555	4	Ke	295	90	1- -55	C	D,S	......	194	38	Casing: 4-inch from surface to 24 feet. Not cased from 24 to 555 feet.
K-12	J. L. Crenshaw........	....	D	550	4	Ke	315	....	....	....	N	......	....	.....	
K-13	Willie A. Thomas......	Burrell Drilling Co............	D	550	4	Ke	303	120	1955	T	D,S	......	170	54	Casing: 4-inch from surface to 40 feet. Not cased from 40 to 550 feet.
K-14	R. S. Thomas..........	James A. Stoudenmire.......	D	565	4	Ke	271	100	1- -55	C	D,S	......	280	50	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 565 feet.
K-15	Isaiah Sanders........	Alabama Drilling Co............	D	575	4	Ke	257	....	....	C	D,S	......	....	.....	
K-16	Dan Alexander.........	.......do.......	D	675	4	Ke	295	....	....	M	D,S	......	214	212	
K-17	B. L. Huffman.........	Ike Tucker......	D	600	4	Ke	238	....	....	C	D,S	......	146	38	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 600 feet.
K-18	M. C. Atchison........	Alabama Drilling Co............	D	526	4	Ke	197	....	....	C	D,S	......	132	56	Casing: 4-inch from surface to 60 feet. Not cased from 60 to 526 feet.
K-19	Louisville and Nashville Railroad......	....	D	....	4	Ke	213	....	....	....	N	......	....	.....	Well plugged.
L-1	H. R. Haigler.........	....	D	....	4	Ke	285	....	....	C	N	......	....	.....	
*L-2	Mrs. Ruby Moore.......	James A. Stoudenmire.......	D	876	4	Ke	230	52	8- -40	C	S	......	1,990	584	

L-3	Colvin W. Cruum.......	Burrell Drilling Co............	D	....	4	Ke	282	112.2	11- 9-55	....	N	....	2,330	682	Observation well. Replaced by well L-4.
L-4	..........do..........	W. J. Bozeman...	D	96	4	Kg	264	80	2- -55	C	D,S	....	12	14	Casing: 4-inch from surface to 219 feet; 3-inch from 219 to 934 feet; 2-inch from 934 to 939 feet; 2-inch screen from 939 to 954 feet. Electric log shown on plate 2. See sample and driller's logs.
*L-5	Ben Woodall..........	Burrell Drilling Co............	D	525	4	Ke	290	....	....	C	D,S	....	795	110	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 525 feet. Supplies dairy.
L-6	J. L. Crenshaw.......	.......do.......	D	522	4	Ke	298	155	10- -55	C	D	....	536	132	Casing: 4-inch from surface to 40 feet. Not cased from 40 to 522 feet.
L-7	Willie Davis.........	Burrell Drilling Co............	D	540	4	Ke	289	150	7- -52	M	D,S	....	515	222	Casing: 4-inch from surface to 40 feet. Not cased from 40 to 540 feet.
*L-8	Raymond L. Dean.......	W. J. Bozeman...	D	535	4	Ke	306	130	12- -55	J	D,S	....	400	56	Casing: 4-inch from surface to 173 feet; 3-inch from 173 to 498 feet. Not cased from 498 to 535 feet. See driller's log.
L-9	Mrs. Charles McMullen.	Jesse Johnson...	D	510	4	Ke	312	....	....	C	D,S	....	235	38	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 510 feet.
L-10	R. W. Merritt.........	Alabama Drilling Co............	D	550	4	Ke	260	....	....	C	D,S	....	207	72	
L-11	W. M. Wynn...........	Burrell Drilling Co............	D	600	4	Ke	255	80	1- -55	C	D,S	....	266	42	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 600 feet.
*L-12	City of Hayneville....	Layne-Central Co...........	D	1,061	8,6	Kg	238	85	2- -50	T	PS	74	18	6	Casing: 8-inch from surface to 1,012 feet; 6-inch from 1,012 to 1,020 feet; 6-inch screen from 1,020 to 1,061 feet. Drawdown reported 33 feet after 8 hours pumping 122 gpm on 2-15-50. See driller's and sample logs of test hole drilled to 1,068 feet.
L-13	W. D. Farrior, Sr.....	W. J. Bozeman...	D	1,020	4	Kg	210	64	10- -53	T	D,S	76	772	168	Casing: 4-inch from surface to 100 feet; 3-inch from 100 to 990 feet; 2-inch from 990 to 1,020 feet, perforated. Yield reported 30 gpm in 1955. Electric log shown on plate 4. See driller's log of test hole drilled to 1,229 feet.
L-14	Mrs. Bessie Barrett...	.......do.......	D	575	4	Ke	220	60	5- -52	T	D,S	....	785	96	Casing: 4- and 2-inch from surface to 575 feet.

Table 1.--Records of wells in Lowndes County, Alabama--Continued

Well no.	Owner	Driller	Type of well	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Altitude of land surface datum (ft.)	Water level: Above (+) or below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Field determinations: Temperature (°F)	Field determinations: Chloride (ppm)	Field determinations: Hardness as $CaCO_3$ (ppm)	Remarks
L-15	--Broughton..........	O. B. Radford...	D	550	4	Ke	242	....	....	C	D,S	......	491	.....	
L-16	J. E. Farrior........	W. J. Bozeman...	D	654	4	Ke	275	125	1- -47	C	D,S	......	491	44	Casing: 4-inch from surface to 216 feet; 3-inch from 216 to 631 feet. Not cased from 631 to 654 feet. Yield reported 15 gpm in 1947. See driller's log.
L-17	E. D. Mims...........	Burrell Drilling Co............	D	600	4	Ke	292	90	1- -55	C	D,S	......	214	42	Casing: 4-inch from surface to 40 feet.
L-18	K. L. Dean...........	W. J. Bozeman...	D	600	4	Ke	261	....	....	C	D,S	......	231	40	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 600 feet.
L-19	R. L. Dean...........	O. B. Radford...	D	600	4	Ke	280	....	....	C	D,S	......	122	34	
L-20	E. E. Grant..........	W. J. Bozeman...	D	520	4	Ke	253	....	....	C	D,S	......	245	60	Casing: 4-inch from surface to 42 feet. Not cased from 42 to 520 feet.
M-1	Bob Dickson..........	.......do.......	D	1,005	4	Kg	.....	60	4- -54	T	D,S	......	5	.....	Casing: 4-inch from surface to 153 feet; 3-inch from 153 to 990 feet; 3-inch screen from 990 to 1,005 feet. Yield reported 22 gpm. See driller's log of test well drilled to 1,017 feet.
M-2	..........do..........	.......do.......	D	990	4	Kg	.....	....	....	C	D,S	......	....	.....	Casing: 4- and 2-inch from surface to 970 feet. See driller's log.
M-3	..........do..........	.......do.......	D	985	4	Kg	.....	....	....	C	S	......	....	.....	
M-4	Otto Moorer..........	.......do.......	D	1,130	6	Kg	220	70	3- -55	J	D,S	......	36	16	Casing: 6-inch from surface to 307 feet; 4-inch from 307 to 735 feet; 3-inch from 735 to 1,084 feet; 2-inch from 1,084 to 1,110 feet; 2-inch screen from 1,110 to 1,130 feet. Known as Grassland Farm well 4. Well developed at site of test hole 2, drilled to 1,132 feet. Test hole 1, about 350 feet southwest of test hole 2, drilled to 1,101 feet. See driller's logs of test holes 1 and 2.

*M-5	Lowndes County Training School............	W. J. Bozeman...	D	1,218	4	Kg	220	....	....	J	PS	......	105	14	Casing: 4- and 3-inch from surface to 1,200 feet; 3-inch screen from 1,200 to 1,218 feet. See driller's log.
M-6	C. H. Harris..........	.......do.......	D	1,217	4	Kg	255	....	....	J	D,S	......	95	18	Casing: 4- and 2-inch from surface to 1,200 feet; 2-inch screen from 1,200 to 1,217 feet.
M-7	L. P. Robinson........	.......do.......	D	1,217	6,3	Kg	248	90	3- -54	T	D,S	......	209	24	Casing: 6-inch from surface to 400 feet; 4-inch from 400 to 1,101 feet; 3-inch from 1,101 to 1,180 feet; 2-inch screen from 1,180 to 1,215 feet. Drawdown reported 10 feet after 8 hours pumping 30 gpm on 3-29-54. See driller's log. Known as Grassland Farm well 5.
N-1	W. G. Gates..........	.......do.......	D	1,230	5,4	Kg	.....	163	7- -46	C	D,S	......	16	20	Casing: 5-inch from surface to 870 feet; 4-inch from 870 to 1,030 feet; 3-inch from 1,030 to 1,190 feet; 2½-inch from 1,190 to 1,230 feet, perforated. See driller's log of test hole drilled to 1,250 feet.
N-2	A. R. Favor..........	.......do.......	D	1,188	4	Kg	.....	....	....	J	D,S	......	19	10	Casing: 4- and 2-inch from surface to 1,168 feet; 2-inch screen from 1,168 to 1,188 feet.
N-3	Fred Holiday.........	.......do.......	D	1,250	4	Kg	295	....	....	C	D,S	......	269	50	Casing: 4- and 2-inch from surface to 1,240 feet; 2-inch screen from 1,240 to 1,250 feet.
*N-4	B. H. Gardner........	.......do.......	D	1,232	4	Kg	220	60	3- -55	J	D,S	......	84	18	Casing: 4- and 2-inch from surface to 1,222 feet; 2-inch screen from 1,222 to 1,232 feet.
*N-5	Crosby Cooperative....	.......do.......	D	1,210	4	Kg	211	....	....	J	D,S	68	105	14	Casing: 4-inch from surface to 191 feet; 3-inch from 191 to 1,166 feet; 2-inch from 1,166 to 1,186 feet; 2-inch screen from 1,186 to 1,201 feet. See sample and driller's logs.
O-1	C. B. Newman..........	.......do.......	D	1,300	4	Kg	.....	....	....	C	D,S	......	88	.....	Casing: 4- and 2-inch from surface to 1,300 feet.
*O-2	H. A. Moon...........	.......do.......	D	1,442	4½	Kg	288	140	2- -53	C	D,S	......	1,010	264	Casing: 4½-inch from surface to 160 feet; 3-inch from 160 to 1,384 feet; 2½-inch screen from 1,384 to 1,442 feet.
P-1	Bill Small...........	Burrell Drilling Co............	D	1,190	4	Ke	.....	80	7- -50	T	N	......	....	.....	Casing: 4-inch from surface to 80 feet. Not cased from 80 to 1,190 feet. Water reported salty.

Table 1.--Records of wells in Lowndes County, Alabama--Continued

Well no.	Owner	Driller	Type of well	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Altitude of land surface datum (ft.)	Water level: Above (+) or below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Field determinations: Temperature (°F)	Field determinations: Chloride (ppm)	Field determinations: Hardness as $CaCO_3$ (ppm)	Remarks
P-2	Charles Rollins.......	Burrell Drilling Co............	D	67	4	Kr	.....	....	....	J	D,S	......	....	.....	Casing: 4-inch to 20 feet. Not cased from 20 to 70 feet.
Q-1	Ryals and Small.......	Ryals Brothers Drilling Co...	D	550	4	.....	.....	....	....	....	N	......	....	.....	Test hole abandoned at 550 feet. Reported no water-bearing beds encountered.
R-1	J. A. Till...........	Burrell Drilling Co............	D	1,344	4	Kg	279	88	3- -55	C	D,S	......	40	10	Casing: 4- and 2-inch from surface to 1,334 feet; 2-inch screen from 1,334 to 1,344 feet.
R-2	Mrs. J. C. Wood.......	W. J. Bozeman...	D	1,200	4	Kg	242	....	....	J	D,S	......	190	24	Casing: 4- and 2-inch from surface to 1,200 feet.
R-3	Mrs. J. E. Scarborough	Burrell Drilling Co............	D	1,100	4	Ke	353	137.6	3-15-55	....	N	......	....	.....	Water reported salty.
S-1	M. D. Holmes..........	W. J. Bozeman..	D	701	4	Ke	281	100	7- -51	T	D,S	......	207	26	Casing: 4-inch from surface to 200 feet; 3-inch from 200 to 690 feet; 2-inch screen from 690 to 701 feet. Supplies poultry farm.
*S-2	D. C. Till, Jr........	.......do.......	D	1,097	4	Kg	256	86	4- -55	T	D,S	......	160	24	Casing: 4- and 2-inch from surface to 1,077 feet; 2-inch screen from 1,077 to 1,097 feet.
S-3	Grassland Farms.......	.......do.......	D	1,448	6	.....	.....	....	....	....	N	......	....	.....	Owner's test well 6. Water samples obtained from drill-stem tests of sand beds in Gordo formation at depths of 1,186 to 1,214, 1,214 to 1,251, 1,270 to 1,310, 1,300 to 1,341, and 1,343 to 1,448 feet reported salty. See driller's log.
*S-4	C. S. Wright..........	.......do.......	D	690	4	Ke	225	90	9- -52	J	D,S	......	1,250	150	Casing: 4-inch from surface to 200 feet; 3-inch from 200 to 675 feet; 2-inch screen from 675 to 690 feet.
S-5	.........do.........	Williams Exploration Co.....	D	2,200	8	.....	205	....	....	....	N	......	....	.....	Oil test well. Electric log shown on plate 2.

S-6	Watkins Johnson.......	Burrell Drilling Co...........	D	850	4	Ke	278	......	....	C	D,S	....	365	74	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 850 feet.
*S-7	Calhoun School.......	....	D	990	8	Ke	320	......	....	T	PS	....	810	64	Yield reported, 70 gpm.
S-8	.........do.........	W. J. Bozeman...	D	1,432	4	Kg	308	149.3	12-14-55	....	N	....	5,420	550	Casing: 4-inch from surface to 1,412 feet; 4-inch screen from 1,412 to 1,432. See sample log of test hole drilled to 1,475 feet.
S-9	N. J. Bell Estate.....	James A. Stoudenmire.......	D	1,040	4	Ke	297	130	1- -55	T	D,S	....	683	66	Yield reported, 30 to 40 gpm.
T-1	W. E. Colvard.........	W. J. Bozeman...	D	785	4	Ke	318	......	....	T	D,S	....	170	20	Casing: 4- and 2-inch from surface to 765 feet; 2-inch screen from 765 to 785 feet.
T-2	E. L. Rodgers.........	....	D	750	4	Ke	332	......	....	C	D,S	....	289	54	
T-3	Louisville and Nashville Railroad......	Alex Stoudenmire	D	700	4	Ke	300	......	....	C	N	....	....	.....	
T-4	F. E. Rodgers.........	O. B. Radford...	D	700	4	Ke	301	126	1937	C	D,S	....	142	36	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 700 feet.
T-5	W. D. Farrior, Jr.....	.......do.......	D	700	4	Ke	315	......	....	C	D,S	....	125	36	Casing: 4-inch from surface to 25 feet. Not cased from 25 to 700 feet.
T-6	G. H. Nichols.........	....	D	765	4	Ke	302	......	....	C	D,S	....	372	44	
*T-7	Louisville and Nashville Railroad......	Alex Stoudenmire	D	765	4	Ke	288	......	....	C	D	....	250	27	Casing: 4- and 2-inch from surface to 755 feet; 2-inch screen from 755 to 765 feet. Supplies 10 to 12 houses.
T-8	W. O. Smith...........	Burrell Drilling Co...........	D	700	4	Ke	328	......	....	C	D,S	....	146	28	Casing: 4- and 2-inch from surface to 700 feet.
T-9	W. D. Farrior, Jr.....	O. B. Radford...	D	800	4	Ke	300	120	2- -55	C	D,S	....	156	32	
*T-10	C. G. Gaston..........	W. J. Bozeman...	D	985	4	Ke	318	......	....	C	D,S	....	208	28	Casing: 4- and 2-inch from surface to 985 feet.
T-11	M. W. Sanderson.......	.......do.......	D	1,020	4	Ke	310	......	....	C	D,S	....	231	38	Casing: 4- and 2-inch from surface to 1,000 feet; 2-inch screen from 1,000 to 1,020 feet.
*T-12	Guy's Wayside Inn.....	James A. Stoudenmire.......	D	990	4	Ke	325	......	....	C	D,S	....	118	16	Casing: 4- and 2-inch from surface to 900 feet. Not cased from 900 to 990 feet.
U-1	M. C. Bedsole.........	M. C. Bedsole...	D	1,000	4	Ke	294	100	4- -55	C	D,S	....	313	56	Casing: 4- and 2-inch from surface to 1,000 feet.
*U-2	J. L. Fail...........	Burrell Drilling Co. and W. J. Bozeman	D	1,177	4	Ke	375	....	....	C	D,S	....	160	18	Casing: 4- and 2-inch from surface to 1,177 feet. Electric log in files of U. S. Geol. Survey.

Table 1.--Records of wells in Lowndes County, Alabama--Continued

Well no.	Owner	Driller	Type of well	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Altitude of land surface datum (ft.)	Water level: Above (+) or below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Field determinations: Temperature (°F)	Field determinations: Chloride (ppm)	Field determinations: Hardness as $CaCO_3$ (ppm)	Remarks
U-3	C. F. Ryals.........	Ryals Brothers Drilling Co..	D	227	4	Kr	.....	120	4- -55	C	D,S	......	......	......	Casing: 4- and 2-inch from surface to 217 feet; 2-inch screen from 217 to 227 feet.
U-4	S. E. Ryals.........	.......do......	D	310	4	Kr	.....	....	....	C	D,S	......	......	......	Casing: 6- and 3-inch from surface to 170 feet. See driller's log.
U-5	W. C. White..........	.......do......	D	229	4	Kr	.....	....	....	C	D,S	......	......	......	See driller's log.
U-6	Foster Oil Co........	Burrell Drilling Co...........	D	220	4	Kr	.....	....	....	C	D	......	16	380	
*U-7	Ryals and Taylor.....	Ryals Brothers Drilling Co..	D	227	4	Kr	.....	120	4- -55	C	D	67	9	325	See driller's log.
U-8	W. C. Bates.........	.......do......	D	265	4	Kr	.....	....	....	C	D,S	......	13	324	Supplies turkey farm. See driller's log.
U-9	H. R. Ellis.........	Sam Killough...	D	227	4	Kr	.....	....	....	C	D,S	......	16	368	Casing: 4- and 2-inch from surface to 217 feet; 2-inch screen from 217 to 227 feet.
U-10	F. C. Taylor........	Ryals Brothers Drilling Co..	D	232	4	Kr	.....	....	....	C	D,S	......	......	......	See driller's log.
V-1	L. C. Conway........	.......do......	D	270	4	Kr	.....	....	....	C	D,S	......	13	514	
V-2	S. E. Ryals.........	.......do......	D	250	4	Kr	.....	....	....	C	D,S	......	16	384	
V-3	W. C. Ryals.........	.......do......	D	207	4	Kr	.....	55	11- -55	C	D,S	......	......	......	See driller's log.
V-4	P. J. Crenshaw.......	M. C. Bedsole..	D	....	4	Kr	.....	....	....	C	D,S	......	13	422	
V-5	City of Fort Deposit..	H. W. Peerson Drilling Co.	D	311	8	Kr	494	225	4- -52	T	PS	......	......	......	Casing: 8-inch from surface to 263 feet; 4-inch from 259 to 263 feet; 4-inch screen from 263 to 309 feet. Drawdown reported 49 feet after 8 hours pumping 58 gpm on 4-28-52. See driller's log.
*V-6	.........do.........	Layne-Central Co...........	D	300	8	Kr	.....	190	9- -52	T	PS	......	12	245	Casing: 8-inch from surface to 260 feet; 6-inch screen from 260 to

															to 300 feet. Drawdown reported 50 feet after pumping 62 gpm for 17 hours on 9-23-52. See sample and driller's log.
V-7	.........do.........	H. W. Peerson Drilling Co..	D	1,418-1,438	....	Ke	464	....	....	C	T	....	1,760	110	Test hole drilled tc 2,046 feet. See sample and driller's log.
				1,748-1,769		Kg							5,940		
* V-8	City of Fort Deposit.	W. J. Bozeman..	D	283	8	Kr	.....	174	9- -53	T	PS	....	10	320	Casing: 8-inch from surface to 194 feet; 6-inch from 194 to 202 feet; 6-inch screen from 202 to 283 feet; Yield reported 80 gpm. See sample and driller's logs of test well drilled to 341 feet.
V-9	T. L. Cassady........	....	D	280	4	Kr	.....	....	....	C	D,S	....	13	160	
V-10	Fort Deposit Lumber Co.................	Sam Killough...	D	260	4	Kr	.....	....	....	C	Ind	....	13	216	Supplies lumber-processing plant.
V-11	R. F. Ward...........	.......do......	D	280	4	Kr	.....	....	....	C	D,S	....	13	240	Casing: 4- and 2-inch from surface to 270 feet; 2-inch screen from 270 to 280 feet.
V-12	H. C. Mullins........	.......do......	D	210	4	Kr	.....	133	4- -53	C	D,S	....	13	198	Casing: 4-inch from surface to 22 feet.
V-13	C. B. Seals..........	Ryals Brothers Drilling Co..	D	248	4	Kr	.....	120	4- -55	C	D,S	....	13	292	Casing: 4- and 2-inch from surface to 180 feet. Not cased from 180 to 248 feet.
W-1	H. W. Moorer.........	Sam Killough...	D	120	4	Kr	.....	....	....	C	D,S	....	33	778	
*W-2	J. A. Moorer.........	Burrell Drilling Co...........	I	140	4	Kr	.....	80	7- -52	J	D,S	....	10	450	Casing: 4-inch from surface to 100 feet. Not cased from 100 to 140 feet.
W-3	S. L. Sullivan.......	Sam Killough...	D	140	4	Kr	.....	....	....	C	D,S	....	......	......	
W-4	J. D. Moorer.........	.......do......	D	140	4	Kr	.....	....	....	.....	D,S	....	......	......	
W-5	H. E. Moorer.........	.......do......	D	140	4	Kr	.....	....	....	J	D,S	....	......	......	
W-6	Joe White............	Ryals Brothers Drilling Co..	D	186	6	Kr	.....	40	4- -55	J	D,S	....	......	......	Casing: 4-inch from surface to 21 feet. Not cased from 21 to 186 feet.
*W-7	L. M. McKinnon.......	Sam Killough...	D	160	4	Kr	.....	2	12- -53	C	D,S	....	28	700	
*W-8	T. K. James..........	--Nixon........	D	270	4	Kr	.....	54	12- -55	C	D,S	....	7	300	Casing: 4-inch from surface to 40 feet. Not cased from 40 to 270 feet.

Table 1.--Records of wells in Lowndes County, Alabama--Continued

Well no.	Owner	Driller	Type of well	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Altitude of land surface datum (ft.)	Water level: Above (+) or below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Field determinations: Temperature (°F)	Field determinations: Chloride (ppm)	Field determinations: Hardness as $CaCO_3$ (ppm)	Remarks
W-9	E. C. Sullivan.......	Ryals Brothers Drilling Co..	D	207	6	Kr	.....	12	4- -55	J	S	......	19	310	Casing: 6-inch from surface to 80 feet. Not cased from 80 to 207 feet.
X-1	Davis M. Woodrue.....	Burrell Drilling Co...........	D	....	4	Kr	330	....	....	J	D,S	......	13	432	
X-2	B. Sessions..........	W. J. Bozeman..	D	85	4	Kr	.....	3	3- -50	M	S	......	....	......	
X-3	O. O. Bender.........	O. O. Bender...	D	112	4	Kr	.....	20	5- -55	J	D,S	......	40	164	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 112 feet.
Y-1	T. M. Godwin.........	W. J. Bozeman..	D	120	4	Kr	.....	30	5- -55	J	D,S	......	....	......	Casing: 4-inch from surface to 40 feet. Not cased from 40 to 120 feet.
Y-2	Mrs. M. L. Godwin....	.......do......	D	150	4	Kr	.....	....	....	J	D,S	......	....	......	
Y-3	E. J. Godwin.........	.......do......	D	....	4	Kr	.....	....	....	J	D,S	......	....	......	
*Y-4	O. W. Till...........	.......do......	D	165	4	Kr	.....	65	8- -44	J	D,S	......	....	......	Casing: 4- and 3-inch from surface to 155 feet; 3-inch screen from 155 to 165 feet.
Y-5	J. D. Lavender.......	....	D	125	4	Kr	.....	....	....	J	D,S	......	40	124	
Y-6	Mrs. S. A. Davis.....	W. J. Bozeman..	D	180	4	Kr	280	50	5- -55	J	D,S	......	....	......	Casing: 4-inch from surface to 40 feet. Not cased from 40 to 180 feet.
*Y-7	W. S. Davis..........	.......do......	D	200	4	Kr	276	40	5- -55	J	D,S	......	28	46	Casing: 4- and 3-inch from surface to 180 feet; 3-inch screen from 180 to 200 feet. Supplies several houses during summer.
Y-8	Mrs. A. C. Davis.....	.......do......	D	185	4	Kr	.....	50	1- -48	J	D,S	......	....	......	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 185 feet.
Y-9	Jimmy Davis..........	.......do......	D	185	4	Kr	.....	....	....	J	D,S	......	....	......	Do.
Y-10	Joe B. Davis.........	Burrell Drilling Co...........	D	185	4	Kr	270	50	3- -55	J	D	......	....	......	Do.

Y-11	W. S. and J. C. Davis.	--Benton........	D	125	3	Kr	202	0.5	12-31-55	.....	S	......	....	......	Casing: 3-inch from surface to 20 feet. Not cased from 20 to 125 feet. Flows reported 5 gpm during winter.
Y-12	Joe B. Davis.........	Burrell Drilling Co............	D	175	4	Kr	215	35	5- -55	J	D,S	......	....	......	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 175 feet.
Y-13	Crawford and John Henry..............	W. J. Bozeman...	D	150	4	Kr	196	Flows	5-25-55	.....	S	......	....	......	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 150 feet. Estimated flow 1 to 5 gpm on 5-25-55.
Y-14	..........do.........	.......do.......	D	150	4	Kr	195	Flows	5-25-55	.....	S	......	....	......	Do.
Y-15	Mrs. S. A. Davis.....	.......do.......	D	150	4	Kr	195	Flows	5-25-55	.....	S	......	....	......	Do.
Y-16	E. A. Little.........	.......do.......	D	150	4	Kr	201	......	....	J	D,S	......	....	......	Casing: 4-inch from surface to 20 feet. Not cased from 20 to 150 feet.
*......	City of Montgomery test well 109......	Layne-Central Co...........	D	200-281	6	Ke	146	15.3	2-19-52	.....	T	......	27	8	Electric log shown on plate 2. See sample log of test hole drilled to depth of 1,219 feet.
				450-521	6	Kg	146	14.0	2-26-52	.....	T	68	2	2	

Table 2.--Chemical analysis of water from selected wells in Lowndes County, Alabama
(in parts per million)

Well no.: Numbers correspond with those shown on plate 1 and table 1.
Water-bearing formation: Kg, Gordo formation; Ke, Eutaw formation; Kr, Ripley formation.

Well no.	Owner	Date of collection	Water-bearing formation	Iron (Fe)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25° C)	pH	Temperature (°F)
											Total	Non carbonate			
D- 2	Dr. --Glass................	10-29-40	Kg	....	......	......	1.0	2.0	0.0	....	16	0	....	....	72
D- 5	D. P. and Cecil Lane........	12-12-55	Kg	0.01	43	0	1.8	1.8	.1	0.1	15	0	104	6.7	70
D- 6	Cecil Lane.................	10-29-40	Ke	....	32	......	2.0	1,300	.0	....	585	....	....	....	......
D- 6	...........do.............	12-12-55	Ke	.01	34	0	1.0	1,330	.0	.9	675	647	4,150	7.0	68
E- 3	Staggers and Beers.........	12-12-55	Ke	.08	58	0	7.8	185	.0	.7	84	36	723	7.4	68
G- 1	Mrs. Mary T. Webster.......	12-12-55	Ke	.03	36	0	5.5	670	.1	.4	240	210	2,180	7.4	68
G- 5	A. A. Bryant...............	12- 8-55	Kg	.08	92	0	8.0	7.8	.0	.2	18	0	185	7.6	......
H- 4	O. E. Browder..............	12-12-55	Kg	.01	49	0	3.0	1.8	.0	.2	24	0	86	7.1	......
H- 7	E. T. Lingham..............	10-29-40	Kg	....	75	......	5.0	27	.0	....	21	....	....	....	......
I- 5	Carr and Rothchild.........	12-12-55	Ke	.0	578	0	.0	975	.0	.5	155	0	3,720	8.0	......
I- 7	J. H. Allport..............	12-12-55	Ke	.0	762	0	.5	410	1.5	1.6	51	0	2,330	8.2	......
1-13	S. A. Pylant...............	12-16-40	Ke	....	709	......	9.0	280	5.8	....	60	....	....	....	......
I-15	Dixon Estate and Foremost Dairies..................	10-26-40	Ke	....	686	......	1.0	300	5.3	....	33	....	....	....	......
I-15	...........do.............	1-23-41	Ke	.04	653	13	1.9	297	5.4	2.2	44	....	....	....	......
J- 2	--Danby....................	12- 8-55	Ke	.0	666	0	.5	285	4.0	1.2	64	0	1,840	8.1	......
K- 2	Marble Stone School........	12- 8-55	Ke	.04	668	0	.8	116	5.0	.6	49	0	1,320	8.2	......
K- 6	B. G. Berry................	12- 8-55	Ke	.02	670	0	4.8	132	4.0	.4	34	0	1,390	8.2	......
K- 7	G. P. McPherson............	12-16-40	Ke	....	610	......	150	203	4.5	....	174	....	....	....	......
K- 8	George A. Sullivan.........	12- 8-55	Ke	.02	712	0	2.0	148	4.5	.2	29	0	1,500	8.3	......
L- 2	Mrs. Ruby Moore............	12-12-55	Ke	.03	62	0	2.0	1,990	.0	1.5	584	533	6,060	7.0	......
L- 5	Ben Woodall................	12- 8-55	Ke	.06	716	0	.5	795	.0	.6	110	0	3,410	8.0	......

L- 8	Raymond L. Dean............	12- 8-55	Ke	.01	734	0	.2	400	3.0	1.0	56	0	2,260	8.2	....
L-12	City of Hayneville..........	10-29-40	Kg	....	129	......	7.0	91	.2	....	15	....	....	....	76
L-12	............do.............	12- 8-55	Kg	.01	133	0	6.5	18	.1	.2	6	0	270	7.5	79
M- 5	Lowndes County Training School..................	12- 8-55	Kg	.01	110	0	4.8	68	.0	.4	9	0	408	7.5	......
N- 4	B. H. Gardner..............	10-29-40	Kg	....	115	......	12	74	.0	....	16	....	....	....	......
N- 5	Crosby Cooperative.........	12- 8-55	Kg	.03	108	0	7.5	105	.0	.4	14	0	528	7.5	......
O- 2	H. A. Moon.................	12- 8-55	Kg	.0	56	0	8.0	1,010	.1	.5	264	218	3,200	7.1	......
S- 2	D. C. Till, Jr.............	12-14-55	Kg	.0	120	0	5.8	160	.0	.6	24	0	715	7.5	......
S- 4	C. S. Wright...............	12-14-55	Ke	.0	616	0	.0	1,250	.0	1.4	150	0	4,650	8.2	......
S- 7	Calhoun School.............	12-14-55	Ke	.0	822	8	.5	810	2.0	1.6	64	0	3,640	8.4	80
T- 7	Louisville and Nashville Railroad.................	12-14-55	Ke	.0	770	6	.2	250	5.0	.9	27	0	1,880	8.4	68
T-10	C. G. Gaston...............	12-14-55	Ke	.46	818	8	.5	208	6.5	.8	28	0	1,820	8.4	......
T-12	Guy's Wayside Inn..........	12-18-40	Ke	....	671	......	13	132	5.6	....	33	....	....	....	......
T-12	............do.............	12-13-55	Ke	.0	658	4	..0	118	4.0	.9	16	0	1,330	8.4	......
U- 2	J. L. Fail.................	12-13-55	Ke	.01	786	10	.2	160	6.5	.5	18	0	1,640	8.4	......
U- 7	Ryals and Taylor...........	12-13-55	Kr	.0	380	0	42	8.5	.1	.1	325	14	645	7.9	67
V- 6	City of Fort Deposit.......	10-29-40	Kr	....	434	......	100	14	.0	....	297	....	....	....	......
V- 6	............do.............	1-25-41	Kr	1.3	420	0	104	13	.0	1.4	357	....	....	....	......
V- 6	............do.............	12-13-55	Kr	.05	344	0	37	12	.0	.6	245	0	604	8.1	67
V- 8	............do.............	12-13-55	Kr	.0	368	0	83	10	.1	.4	320	18	713	8.2	......
W- 2	J. A. Moorer...............	12-13-55	Kr	.0	306	0	183	10	.1	.1	450	199	795	7.9	......
W- 7	L. M. McKinnon.............	12-13-55	Kr	.0	396	0	360	28	.0	.2	700	376	1,210	7.9	......
W- 8	I. K. James................	12-13-55	Kr	.0	324	0	36	7	.1	.2	300	34	570	7.9	......
Y- 4	O. W. Till.................	10-29-40	Kr	....	211	......	200	30	.5	....	32	....	....	....	......
Y- 7	W. S. Davis................	12-19-55	Kr	.0	208	0	180	28	.4	.5	46	0	791	7.9	......

Table 2.--Chemical analysis of water from selected wells in Lowndes County, Alabama--Continued
(in parts per million)

Well no.	Owner	Date of collection	Water-bearing formation	Iron (Fe)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25° C)	pH	Temperature (° F)
											Total	Non carbonate			
--	City of Montgomery test well 109	2-19-52	Ke	2.0	401	11	6.0	27	2.8	1.0	8	0	679	8.6	....
--	............do..............	2-26-52	Kg	1.4	24	0	3.0	2	.0	.3	2	0	48.7	7.0	68

Table 3.--Sample logs of wells in Lowndes County, Alabama

	Thickness (feet)	Depth (feet)
Well H-4 (Samples described by John C. Scott)		
Samples missing	128	128
Mooreville chalk:		
Clay, gray, silty, micaceous, calcareous	169	297
Clay, gray, sandy, calcareous, fossiliferous	21	318
Eutaw formation:		
Sand, gray, fine-grained, micaceous, fossiliferous; clay, gray, sandy, fossiliferous; sandstone, light gray, calcareous	21	339
Clay, gray, sandy, calcareous, micaceous, fossiliferous	21	360
Sand, gray, fine-grained, clayey, fossiliferous; clay, reddish-brown, sandy	21	381
Sand, gray, fine-grained, clayey, fossiliferous	21	402
Sand, yellowish-gray, fine- to medium-grained, clayey, quartzitic; clay, gray and reddish-brown, sandy, micaceous	63	465
Sand, light gray, fine- to medium-grained, sparsely glauconitic, micaceous, clayey, quartzitic	42	507
Sand, yellowish-gray, fine- to medium-grained, glauconitic, quartzitic, clayey; clay, gray, sandy, micaceous and clay, moderate brown, sandy, ferruginous	63	570
Sand, yellowish-gray, medium-grained, glauconitic, quartzitic, clayey; clay, brown, pink and gray, sandy, micaceous	63	633
Sand, yellowish-brown, glauconitic, micaceous, quartzitic, clayey	23	656
Sand, yellowish-gray, fine- to very coarse-grained, sparsely glauconitic, clayey; sandstone, light gray, calcareous; clay, gray to yellow, sandy micaceous, ferruginous	19	675

Table 3.--Sample logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well H-4--Continued		
Eutaw formation--Continued		
Sand, yellow, medium- to very coarse-grained, quartzitic; clay, yellowish-gray, sandy	21	696
Gordo formation:		
Sand, yellow, medium- to very coarse-grained, quartzitic; clay, reddish-brown, sandy, pyrite	21	717
Sand, light yellow to white, coarse- to very coarse-grained, quartzitic, clayey	21	738
Clay, moderate reddish-brown, pale green and purple, sandy, micaceous	21	759
Sand, yellow, coarse- to very coarse-grained, quartzitic, clayey; clay, varicolored, sandy, micaceous	21	780
Sand, yellow, medium- to very coarse-grained, quartzitic, clayey	13	793
Clay, red to brown, very sandy, ferruginous	18	811
Sand, yellow, medium- to very coarse-grained, quartzitic; clay, moderate reddish-brown, sandy, ferruginous	22	833
Well L-4 (Samples described by John C. Scott)		
Demopolis chalk:		
Sand, yellow, coarse-grained; limestone; clay, calcareous	25	25
Mooreville chalk:		
Chalk, gray, silty; limestone, white	19	44
Chalk, gray, silty, micaceous	126	170
Clay, gray, calcareous, slightly micaceous	42	212
Clay, silty, calcareous, micaceous, fossiliferous	42	254

Table 3.--Sample logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well L-4--Continued		
Mooreville chalk--Continued		
Clay, silty, calcareous, micaceous	84	338
Clay, fine-grained, micaceous	105	443
Clay, calcareous, silty	21	464
Eutaw formation:		
Sand, light gray, fine-grained; sandstone, calcareous; clay, gray, silty	26	490
Sand, light gray, fine- to medium-grained; clay, gray, micaceous; sandstone, ferruginous, fossiliferous	21	511
Clay, gray, sandy, micaceous, fossiliferous; sand, light gray, fine-grained, ferruginous	21	532
Sand, fine-grained, slightly ferruginous; clay, gray, micaceous	42	574
Sand, light gray, fine- to medium-grained, glauconitic; clay, gray, micaceous	21	595
Clay, gray, glauconitic, micaceous, fossiliferous	21	616
Clay, gray, sandy, glauconitic, micaceous; sand, light gray, fine- to medium-grained, glauconitic	21	637
Clay, gray, sandy, micaceous, fossiliferous; sandstone, calcareous, fossiliferous	21	658
Clay, gray, fissile, micaceous, fossiliferous	21	679
Clay, gray, fissile, micaceous; sand, light gray, medium-grained, glauconitic	126	805
Clay, gray, sandy, fissile, micaceous, ferruginous	42	847
Gordo formation:		
Clay, gray, fissile, micaceous; sand, yellow, medium- to very coarse-grained, ferruginous	21	868

Table 3.--Sample logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well L-4--Continued		
Gordo formation--Continued		
Clay, red, sandy, and clay, gray, fissile, micaceous	21	889
Sand, yellow, medium- to very coarse-grained; clay, red and gray, sandy	23	912
Sand, yellow, coarse- to very coarse-grained, ferruginous	22	934
Sand, yellow, medium- to very coarse-grained; gravel, medium-grained; clay, greenish-gray, sandy	6	940
Sand, yellow, medium- to very coarse-grained; ferruginous	21	961
Well L-12 (Samples described by John C. Scott)		
Sand, yellow, fine- to medium-grained, quartzitic	20	20
Demopolis chalk:		
Clay, gray, sandy, silty, calcareous	45	65
Mooreville chalk:		
Clay, gray, silty, calcareous, micaceous	199	264
Samples missing	22	286
Clay, silty, calcareous, micaceous, fossiliferous	245	531
Eutaw formation:		
Sand, yellowish-gray, fine- to medium-grained, quartzitic, clayey	22	553
Sand, light gray, medium-grained, sparsely glauconitic, quartzitic, clayey	23	576
Sand, yellow, medium-grained, quartzitic, clayey	22	598

Table 3.--Sample logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well L-12--Continued		
Eutaw formation--Continued		
Sand, yellowish-gray, fine- to coarse-grained, glauconitic, ferruginous, quartzitic, clayey	65	633
Sand, gray, medium-grained, glauconitic, quartzitic, clayey; clay, gray to brown, sandy, glauconitic	23	686
Sand, gray, medium- to coarse-grained, glauconitic, quartzitic; clay, gray, sandy, glauconitic, micaceous	65	751
Sand, light gray, medium-grained, glauconitic, micaceous, quartzitic, clayey	21	772
Samples missing	25	797
Clay, gray, sandy, glauconitic, micaceous	72	869
Sand, yellow, medium- to coarse-grained, sparsely glauconitic, quartzitic; clay, gray- to green, sandy, micaceous	22	891
Clay, gray, sandy, micaceous	21	912
Sand, light yellow, quartzitic, clayey; clay, gray, sandy, fissile, micaceous	22	934
Gordo formation:		
Samples missing	23	957
Sand, light yellow, medium- to very coarse-grained, quartzitic, ferruginous; clay, gray, green, red and brown, micaceous, sandy	45	1,002
Sand, yellow, medium- to very coarse-grained, quartzitic, ferruginous, clayey	22	1,024
Sand, yellow, medium- to very coarse-grained, quartzitic, ferruginous, clayey; clay, varicolored, sandy, micaceous	44	1,068

Table 3.--Sample logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well N-5 (Samples described by John C. Scott)		
Samples missing	212	212
Demopolis chalk:		
Clay, gray, sandy, silty, calcareous, micaceous, fossiliferous	84	296
Mooreville chalk:		
Clay, gray, silty, calcareous, micaceous, fossiliferous	294	590
Marl, gray, calcareous, fossiliferous	42	632
Marl, gray, silty, calcareous, fossiliferous	21	653
Marl, gray, sandy, calcareous, fossiliferous	21	674
Eutaw formation:		
Sand, light gray, medium-grained, fossiliferous; sandstone, light gray, calcareous, fossiliferous; clay, gray, calcareous, micaceous	63	737
Sand, light gray, medium-grained, glauconitic, quartzitic; sandstone, gray, calcareous, fossiliferous; clay, gray, sandy, micaceous	84	821
Clay, gray, sandy, micaceous, slightly glauconitic	21	842
Sand, gray, medium-grained, micaceous, glauconitic, very clayey	63	905
Sand, yellowish-gray, medium-grained, glauconitic, micaceous, quartzitic; clay, gray to brown, sandy, micaceous	42	947
Sand, light gray, medium-grained, glauconitic, micaceous, quartzitic, clayey, fossiliferous	42	989

Table 3.--Sample logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well N-5--Continued		
Eutaw formation--Continued		
Sand, yellowish-gray, medium-grained, glauconitic, quartzitic, fossiliferous; sandstone, gray, calcareous; clay, gray, fissile, micaceous	46	1,035
Gordo formation:		
Sand, light yellow, medium- to very coarse-grained, quartzitic, clayey; shale, gray, silty, micaceous, pyritic	21	1,056
Clay, red, moderate brown, gray and purple, micaceous; shale, gray, silty, micaceous; sand, yellow, medium- to very coarse-grained, ferruginous	21	1,077
Samples missing	133	1,210
Well S-8 (Samples described by John C. Scott)		
Samples missing	20	20
Demopolis chalk:		
Clay, gray, calcareous, micaceous	232	252
Clay, gray, calcareous, micaceous, fossiliferous	147	399
Mooreville chalk:		
Clay, gray, calcareous, micaceous, fossiliferous; limestone, white, siliceous	21	420
Clay, gray, calcareous, micaceous, fossiliferous	84	504
Clay, gray, calcareous, micaceous, fossiliferous; limestone, white, siliceous	84	588
Clay, gray, calcareous, micaceous, fossiliferous	63	651

Table 3.--Sample logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well S-8--Continued		
Mooreville chalk--Continued		
Clay, gray, calcareous, sandy, fossiliferous; limestone, yellowish-white, siliceous	21	672
Clay, gray, calcareous, sandy, fossiliferous, micaceous	42	714
Clay, gray, calcareous, micaceous, pyritic, fossiliferous	42	756
Clay, gray, sandy, calcareous, micaceous, pyritic, fossiliferous	21	777
Clay, gray, sandy, calcareous, fossiliferous; limestone, white, fossiliferous	40	817
Clay, gray, sandy, fissile, fossiliferous; limestone, white, siliceous, fossiliferous	41	858
Chalk, white, silty; clay, gray, sandy, calcareous, fossiliferous	52	910
Clay, gray, sandy, calcareous, fossiliferous; sandstone, white, calcareous	21	931
Eutaw formation:		
Sand, light gray, medium-grained, quartzitic; sandstone, white, calcareous; clay, gray, sandy, micaceous, fossiliferous	42	973
Sand, light gray, medium-grained, glauconitic, quartzitic; clay, gray, sandy, micaceous	21	994
Sand, light gray, medium- to coarse-grained, glauconitic, quartzitic; sandstone, gray, calcareous, glauconitic; clay, gray, fossiliferous	21	1,015
Sand, light gray, fine- to medium-grained, fossiliferous; clay, gray, silty, micaceous	40	1,055
Sand, light gray, medium-grained, glauconitic, quartzitic; clay, gray, sandy, micaceous	42	1,097

Table 3.--Sample logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well S-8--Continued		
Eutaw formation--Continued		
Sand, light gray, medium-grained, micaceous, pyritic, quartzitic; sandstone, white, calcareous, fossiliferous; clay, gray, silty, micaceous	63	1,160
Sand, light gray, medium- to coarse-grained, glauconitic, quartzitic; clay, gray, sandy	21	1,181
Sand, light gray, medium-grained, very glauconitic, quartzitic; clay, gray, sandy, micaceous	63	1,244
Sand, light gray, medium-grained, glauconitic, quartzitic; clay, gray, sandy; sandstone, light gray, calcareous	21	1,265
Sand, light gray, medium- to coarse-grained, glauconitic, quartzitic; clay, gray, sandy, micaceous, fossiliferous	21	1,286
Gordo formation:		
Sand, light gray to yellow, medium- to very coarse-grained, glauconitic; clay, gray and red, sandy; sandstone, light gray, calcareous	21	1,307
Sand, yellow, medium- to very coarse-grained, ferruginous, quartzitic; clay, red to brown, silty, micaceous	21	1,328
Clay, red, pale green, brown and gray, sandy, micaceous; sand, yellow, medium- to very coarse-grained, ferruginous, quartzitic	105	1,433
Sand, yellow, medium- to very coarse-grained, ferruginous, quartzitic; gravel, yellow, fine- to medium-grained, quartzitic; clay, varicolored, sandy	42	1,475

Table 3.--Sample logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well V-7 (Samples described by E. A. Bottoms)		
Providence sand:		
Sand, fine- to coarse-grained, ferruginous; clay, sandy	20	20
Shale, brownish-gray, silty, micaceous, lignitic; sandstone, gray, glauconitic, micaceous	21	41
Sandstone, gray, chalky, glauconitic, micaceous	20	61
Sand, fine- to medium-grained; limestone, gray, sandy, glauconitic	41	102
Prairie Bluff chalk:		
Shale, greenish-gray, sandy, silty, micaceous	21	123
Sandstone, gray, chalky, glauconitic	20	143
Shale, brownish-gray, silty, calcareous, glauconitic, micaceous	41	184
Sandstone, gray, calcareous, glauconitic, micaceous; sand, medium- to coarse-grained, glauconitic; clay, brown, sandy	21	205
Ripley formation:		
Samples missing	20	225
Sand, medium- to coarse-grained	21	246
Samples missing	41	287
Sand, fine- to medium-grained, micaceous	20	307
Samples missing	21	328
Shale, brownish-gray, micaceous; limestone, white, sandy	20	348
Shale, greenish-gray, micaceous	21	369
Demopolis chalk:		
Chalk, white	20	389
Shale, gray, micaceous	21	410
Sand, gray, fine- to medium-grained; shale, gray	20	430

Table 3.--Sample logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well V-7--Continued		
Demopolis chalk--Continued		
Limestone, brownish-gray, sandy, glauconitic	21	451
Shale, brownish-gray, sandy, micaceous; sandstone, gray, calcareous, glauconitic, micaceous	20	471
Sand, fine- to medium-grained, glauconitic	21	492
Samples missing	83	575
Shale, brownish-gray, sandy, micaceous	19	594
Samples missing	62	656
Sandstone, gray, calcareous, glauconitic, micaceous	20	676
Samples missing	62	738
Shale, brownish-gray, sandy, micaceous	20	758
Samples missing	21	779
Mooreville chalk:		
Chalk, white; sandstone, fine-grained, calcareous, glauconitic, micaceous	20	799
Samples missing	41	840
Chalk	41	881
Shale, gray, marly	21	902
Samples missing	61	963
Shale, gray, marly	21	984
Samples missing	41	1,025
Sand, fine- to medium-grained	20	1,045
Samples missing	62	1,107
Shale, gray, calcareous	20	1,127
Samples missing	41	1,168
Shale, gray, calcareous	20	1,188
Samples missing	22	1,210
Shale, gray, calcareous	20	1,230
Samples missing	62	1,292
Sandstone, fine-grained, glauconitic, micaceous	20	1,312

Table 3.--Sample logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well V-7--Continued		
Eutaw formation:		
Samples missing	62	1,374
Sand, fine- to medium-grained, glauconitic	20	1,394
Samples missing	103	1,497
Sand, fine- to medium-grained, glauconitic	20	1,517
Sand, greenish-gray, fine-grained, glauconitic, micaceous, quartzitic	4	1,521
Clay, gray, sandy, micaceous	22	1,543
Clay, gray, fine-grained, sandy, micaceous	82	1,625
Sand, gray, fine-grained, clayey, micaceous, glauconitic, quartzitic	41	1,666
Clay, gray, sandy, glauconitic	41	1,707
Sand, gray, fine-grained, slightly ferruginous, quartzitic	21	1,728
Gordo formation:		
Sand, yellowish-gray, fine-grained, ferruginous, quartzitic	20	1,748
Sand, grayish-yellow, medium- to very coarse-grained, ferruginous, quartzitic	41	1,789
Sand, grayish-yellow, medium- to very coarse-grained, ferruginous, quartzitic; shale, gray	72	1,861
Samples missing	185	2,046

Well V-8
(Samples described by H. J. Nyholm)

	Thickness (feet)	Depth (feet)
Providence sand:		
Sand, yellowish-brown, medium- to coarse-grained, silty, micaceous, quartzitic	25	25
Clay, yellowish-brown, sandy, micaceous, lignitic	22	47

Table 3.--Sample logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well V-8--Continued		
Providence sand--Continued		
Clay, yellowish-brown, silty, sandy, micaceous, lignitic	63	110
Prairie Bluff chalk:		
Clay, light gray, micaceous, lignitic	60	170
Sand, gray, medium-grained, quartzitic; clay, gray, glauconitic, micaceous	13	183
Ripley formation:		
Sand, light gray, very coarse-grained, glauconitic, quartzitic; clay, gray, micaceous	30	213
Sand, white, coarse-grained, glauconitic, quartzitic	10	223
Sand, white, coarse-grained, glauconitic, micaceous, quartzitic	86	309
Clay, light gray, silty, micaceous	32	341
City of Montgomery test well 109 (Samples described by H. L. Reade)		
Mooreville chalk:		
Sand, yellow to light gray, medium- to coarse-grained, fossiliferous; clay, yellow	10	10
Eutaw formation:		
Sand, light gray, medium-grained; clay, greenish-gray, micaceous	22	32
Sand, light gray, medium-grained, glauconitic	24	56
Sand, light gray, medium- to coarse-grained, glauconitic; clay, greenish-gray, micaceous	24	80

Table 3.--Sample logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
City of Montgomery test well 109--Continued		
Eutaw formation--Continued		
Sand, light gray, fine- to medium-grained, glauconitic; clay, greenish-gray, micaceous	60	140
Sand, light gray, medium- to coarse-grained, glauconitic; clay, greenish-gray, micaceous	32	172
Sand, light gray, fine- to medium-grained; clay, greenish-gray, micaceous	23	195
Sand, light gray, medium- to coarse-grained, sparsely glauconitic	24	219
Sand, light gray, medium- to coarse-grained; clay, greenish-gray, micaceous	14	233
Sand, light gray, fine- to medium-grained; clay, greenish-gray, micaceous	24	257
Sand, light gray, fine- to medium-grained; sparsely glauconitic	10	267
Sand, light gray, medium-grained, sparsely glauconitic	22	289
Sand, light gray, fine- to medium-grained; clay, greenish-gray, micaceous	13	302
Sand, light gray, medium- to coarse-grained, glauconitic; clay, greenish-gray, micaceous, fossiliferous	24	326
Gordo formation:		
Sand, pinkish-gray, medium-grained; clay, brown and greenish-gray, sandy	20	346
Sand, white, coarse- to very coarse-grained; clay, varicolored, sandy	10	356
Sand, white, medium- to coarse-grained; clay, varicolored, sandy	16	372
Sand, yellow, fine- to medium-grained; clay, varicolored, sandy	10	382
Sand, yellow, medium- to very coarse-grained; clay, varicolored, sandy	13	395

Table 3.--Sample logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
City of Montgomery test well 109--Continued		
Gordo formation--Continued		
Sand, light yellow to white, medium- to very coarse-grained	23	418
Sand, yellow, medium-grained; clay, varicolored, sandy	10	428
Sand, yellow, medium- to coarse-grained, ferruginous	13	441
Sand, yellow, medium- to coarse-grained, ferruginous; clay, varicolored, sandy	10	451
Sand, yellow, medium- to very coarse-grained, ferruginous	70	521
Sand, yellow, medium- to very coarse-grained, ferruginous; clay, varicolored, sandy	15	536
Sand, white, fine- to medium-grained; clay, varicolored, sandy	10	546
Sand, yellow, medium- to coarse-grained, ferruginous; clay, varicolored, sandy	37	583
Sand, yellow, fine-grained, ferruginous; clay, varicolored, sandy	10	593
Sand, white, fine- to medium-grained; clay, varicolored, sandy	14	607
Sand, yellowish-gray, fine- to coarse-grained, ferruginous; clay, varicolored, sandy	66	673
Coker formation:		
Clay, greenish-gray, micaceous; sand, yellowish-gray, medium-grained	37	710
Sand, white, medium-grained	13	723
Sand, white, medium-grained; clay, varicolored, sandy	10	733
Clay, greenish-gray, micaceous; sand, light gray, fine- to medium-grained; pyrite	46	779

Table 3.--Sample logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
City of Montgomery test well 109--Continued		
Coker formation--Continued		
Sand, light gray, fine- to medium-grained; clay, greenish-gray, micaceous; lignite	14	793
Clay, greenish-gray, micaceous, fissile; sand, light gray, fine- to medium-grained	48	841
Sand, light gray, fine- to medium-grained; clay, greenish-gray, micaceous	34	875
Sand, light gray, medium-grained, glauconitic	13	888
Sand, light gray, fine- to medium-grained; clay, greenish-gray, fissile, micaceous	10	898
Sand, white, medium- to coarse-grained; clay, greenish-gray, fissile, micaceous	13	911
Sand, white, medium- to very coarse-grained; clay, varicolored, sandy	10	921
Sand, light gray, fine- to medium-grained; clay, greenish-gray, micaceous	13	934
Sand, white, medium- to coarse-grained; clay, greenish-gray, micaceous	24	958
Clay, greenish-gray, micaceous; sand, white, medium- to coarse-grained	31	989
Shale, greenish-gray, micaceous; sand, white, fine- to medium-grained; pyrite	13	1,002
Shale, greenish-gray, micaceous; sand, white, medium- to coarse-grained	10	1,012
Sand, yellow, coarse-grained, ferruginous; clay, varicolored, sandy	14	1,026
Sand, white, fine- to medium-grained; clay, varicolored, sandy	10	1,036
Sand, white, medium-grained; clay, varicolored, sandy	24	1,060
Sand, white, medium-grained	13	1,073

Table 3.--Sample logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
City of Montgomery test well 109--Continued		
Coker formation--Continued		
Clay, varicolored, fissile, sandy; sand, white, medium-grained	10	1,083
Sand, light yellow to white, medium- to coarse-grained; clay, varicolored, fissile, micaceous	65	1,148
Sandstone, yellow, medium- to coarse-grained, ferruginous	5	1,153
Sand, yellow, medium-grained, clay, varicolored, fissile, sandy	24	1,177
Sand, yellow, medium- to coarse-grained; clay, greenish-gray, micaceous	38	1,215
Crystalline rocks:		
Sand, yellow, medium- to very coarse-grained; schistose fragments	4	1,219

Table 4.--Drillers' logs of wells in Lowndes County, Alabama

	Thickness (feet)	Depth (feet)
Well H-4		
Clay, red; gravel	6	6
Clay, white, limey	4	20
Rock	1	21
Marl	267	288
Rock	1	289
Marl; rock ledges	24	313
Rock	2	315
Sand, rock and marl ledges	247	562
Sand, brown, hard, glauconitic	7	569
Sand, dark green, hard	9	578
Sand, light brown, glauconitic	65	643
Sand, brown, sticky; gravel	8	651
Clay; sand, brown; gravel	15	666
Clay, yellow and brown; gravel ledges	38	704
Clay, red, blue and brown	12	716
Sand, white, sticky; clay, soft	17	733
Clay, red and blue	11	744
Sand, brown, sticky; gravel	4	748
Clay, red and blue, gummy	21	769
Sand, dark brown; gravel	24	793
Clay, red, hard	7	800
Sand, red; clay, layers	8	808
Sand, reddish-brown; gravel, brown	25	833
Well L-4		
Sand; clay	8	8
Limestone; clay; marl	23	31
Marl, blue	449	480
Limestone	1	481
Sand, gray, glauconitic	3	484
Rock, white, hard	2	486

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well L-4--Continued		
Sand; shell rock; marl ledges	354	840
Marl, red and blue	18	858
Sand, white, sticky; gravel; clay balls	18	876
Marl, red	21	897
Sand, brown; gravel; marl layers	37	934
Marl, red and blue	2	936
Sand, light brown; gravel	25	961
Well L-8		
Clay, yellow and red; limestone	18	18
Marl, blue, soft	26	44
Rock	1	45
Marl	6	51
Rock	1	52
Marl	5	57
Rock	0.5	57.5
Marl	0.5	58
Rock	1	59
Marl	441	500
Rock	1	501
Sand	1	502
Rock, hard	2	504
Sand	26	530
Marl, sandy	5	535
Rock at 535 feet		
Well L-12		
Clay	12	12
Sand	9	21

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well L-12--Continued		
Clay	53	74
Lime rock	2	76
Clay	7	83
Lime rock	2	85
Clay; chalk	453	538
Sand	5	543
Rock	2	545
Sand	5	550
Rock	5	555
Sand	12	567
Rock	2	569
Sand	7	576
Rock	3	579
Sand	5	584
Rock	2	586
Sand	4	590
Rock	2	592
Sand	56	648
Clay	1	649
Sand	5	654
Rock	1	655
Sand	5	660
Rock	2	662
Sand, draggy	6	668
Sand, packed	40	708
Rock	2	710
Clay, sandy	5	715
Sand, packed	27	742
Rock, hard	5	747
Sand	16	763
Clay, sandy	7	770
Sand, packed	32	802
Clay	56	858

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well L-12--Continued		
Rock	1	859
Clay, sandy	12	871
Clay	10	881
Sand and clay, interbedded	30	911
Sand, draggy	8	919
Sand, packed	21	940
Sand, hard	4	944
Clay, sandy, hard	12	956
Clay, red	18	974
Sand	4	978
Sand, packed	31	1,009
Clay	6	1,015
Sand, packed	53	1,068
Well L-13		
Soil	20	20
Marl	512	532
Rock and sand	16	548
Shale	15	563
Rock	1	564
Sand	5	569
Rock	3	572
Sand; layers of marl	16	588
Rock	3	591
Marl	1	592
Rock	1	593
Sand	4	597
Rock	1	598
Sand, boulders, marl	33	631
Sand	21	652
Rock	2	654
Sand	41	695
Sand, hard	10	705

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well L-13--Continued		
Rock	1	706
Sand	8	714
Rock	1	715
Sand	27	742
Rock	2	744
Sand, hard streaks	66	810
Marl	4	814
Sand; marl; rock	74	888
Shale, red and blue	21	909
Marl	11	920
Sand; clay; shale	22	942
Marl	3	945
Sand; shale	19	964
Sand; gravel; shale	7	971
Marl	5	976
Sand; gravel	75	1,051
Marl	1	1,052
Sand; gravel	69	1,121
Marl	5	1,126
Sand; marl layers	22	1,148
Shale, red	81	1,229
Well L-16		
Clay, red and white, soft	19	19
Marl, blue and gray, soft	142	161
Rock, white, soft	1	162
Marl, gray, soft	3	165
Rock, white, soft	1	166
Marl, blue, hard	4	170
Rock, gray, medium-hard	1	171
Marl, blue	7	178

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well L-16--Continued		
Rock, brown, medium-hard	1	179
Marl, blue, hard with soft streaks	382	561
Rock, white, hard	1	562
Marl, blue, hard	29	591
Rock, gray, soft	0.5	591.5
Marl, blue, soft	1.5	593
Rock, gray, soft	1	594
Marl, blue, hard	27	621
Rock, brown, soft	1	622
Marl, blue, hard	2	624
Rock, white, soft	1	625
Marl, blue, soft, sticky	6	631
Rock, brown, hard	1	632
Sand, gray, medium- to fine-grained	22	654
Well M-1		
Clay	18	18
Marl	422	440
Rock	2	442
Sand; rock ledges	22	464
Sand and marl, interbedded	21	485
Sand	67	552
Sand; marl; rock layers	33	585
Sand, soft	33	618
Sand; marl; rock layers	58	676
Sand, green	106	782
Sand	35	817
Marl, sandy	22	839
Marl, hard, sticky	14	853
Sand; gravel; marl layers	136	989
Shale	3	992
Sand; gravel	25	1,017

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well M-2		
Soil	20	20
Marl	11	31
Limestone	1	32
Marl	10	42
Rock	1	43
Marl	347	390
Chalk, white	9	399
Marl	49	448
Rock, hard	2	450
Sand	3	453
Rock	1	454
Sand	6	460
Rock	1	461
Sand; marl	89	550
Rock	1	551
Sand, glauconitic in lower part	279	830
Marl, soft	6	836
Marl, dark, hard	14	850
Sand; gravel; marl layers	57	907
Marl, hard	1	908
Sand	5	913
Marl, hard	1	914
Sand	7	921
Sand; gravel; marl layers	69	990
Well M-4 (test well 1)		
Chalk	636	636
Rock	2	638
Sand	4	642
Rock	3	645

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well M-4 (test well 1)--Continued		
Sand	10	655
Rock	1	656
Sand	78	734
Rock	2	736
Sand	14	750
Rock	1	751
Sand	23	774
Rock	1	775
Sand	19	794
Rock	1	795
Sand	20	815
Rock	1	816
Sand	32	848
Rock	2	850
Sand	20	870
Sand; thin layers of rock	46	916
Sand; gravel	12	928
Rock	1	929
Sand; thin layers of rock	88	1,017
Sand; marl ledges	56	1,073
Marl	8	1,081
Sand	20	1,101
Well M-4 (test well 2)		
Chalk	614	614
Rock	3	617
Sand; marl layers	72	689
Rock	1.5	690.5
Sand	14.5	705
Rock	1	706

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well M-4 (test well 2)--Continued		
Sand	51	757
Marl; sand	21	778
Rock	1	779
Marl	3	782
Rock	1	783
Sand	47	830
Sand; marl ledges	62	892
Sand	152	1,044
Marl	2.5	1,046.5
Sand	14.5	1,061
Marl	7	1,068
Sand; marl layers	11	1,079
Marl	3	1,082
Sand	50	1,132

Well M-5

	Thickness (feet)	Depth (feet)
Soil; marl	662	662
Rock	2	664
Sand; rock	4	668
Sand	34	702
Rock	1	703
Sand	60	763
Rock; sand	4	767
Sand	15	782
Rock	1	783
Sand	61	844
Rock	1	845
Sand; sandstone	28	873
Rock	2	875
Marl	46	921
Rock	2	923
Sand; marl	19	942

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well M-5--Continued		
Rock	2	944
Sand, green	13	957
Marl; rock	26	983
Sand	28	1,011
Rock	1	1,012
Sand	15	1,027
Clay, red and blue	34	1,061
Sand	7	1,068
Clay, red and blue	31	1,099
Marl, hard	4	1,103
Sand; gravel; shale	35	1,138
Marl	6	1,144
Sand; marl	16	1,160
Marl	10	1,170
Sand	17	1,187
Soapstone	2	1,189
Sand	7	1,196
Soapstone	8	1,204
Sand	14	1,218
Well M-7		
Marl	680	680
Rock	3	683
Sand	26	709
Rock	1	710
Sand	18	728
Rock	1	729
Sand; thin soapstone layers	91	820
Rock	0.5	820.5
Sand; hard streaks	12.5	833
Rock	1	834

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well M-7--Continued		
Sand	5	839
Rock	1	840
Sand	7	847
Rock	1	848
Sand; marl	39	887
Rock, hard	1	888
Clay	5	893
Sand	61	954
Rock	1	955
Sand; clay; 2-inch thick rock layers	39	994
Sand; clay	84	1,078
Clay, red and blue	9	1,087
Sand, brown	14	1,101
Soapstone	3	1,104
Sand, brown; thin rock layers	46	1,150
Sand, brown	67	1,217
Well N-1		
Soil	20	20
Chalk	672	692
Sand, very soft	8	700
Rock, hard	2	702
Clay, very soft	2	704
Rock, hard	2	706
Sand, hard	8	714
Rock, very hard	1	715
Sand, hard	9	724
Rock, soft	8	732
Sandstone	20	752
Sand	20	772
Clay	7	779

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well N-1--Continued		
Rock, very hard	1	780
Sand; soapstone ledges (salt water)	80	860
Sand, hard	20	880
Clay, soft	9	889
Clay	6	895
Clay, hard	4	899
Sand, soft	40	939
Clay, hard	19	958
Sand, brown	8	966
Clay, hard	2	968
Sand, white	12	980
Clay, hard	17	997
Sand, white, soft, (salt water)	28	1,025
Rock, hard	2	1,027
Sandstone	19	1,046
Sand, white	20	1,066
Clay, white	1	1,067
Clay, red	58	1,125
Clay, red; sand, (salt water)	27	1,152
Clay, red; sand; gravel	16	1,168
Clay, red and blue	22	1,190
Sand, brown	14	1,204
Soapstone	2	1,206
Sand, reddish-brown, medium-grained (fresh water)	44	1,250
Well N-5		
Soil	12	12
Marl	220	232
Rock	1	233
Marl	2	235
Rock	2	237
Marl	3	240

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well N-5--Continued		
Rock	1	241
Marl	2	243
Rock	2	245
Marl	7	252
Rock	1	253
Marl	24	277
Rock	1	278
Marl	9	287
Rock	1	288
Marl	330	618
Marl; rock ledges; shells	55	673
Rock, hard	2	675
Sand, gray; marl; rock and shell ledges	255	930
Sand, reddish-brown, glauconitic	34	964
Rock, hard	2	966
Sand, reddish-brown; marl layers	79	1,045
Shale, red and blue, hard	12	1,057
Sand, reddish-brown, fine-grained	11	1,068
Clay, varicolored, hard	19	1,087
Clay, varicolored	11	1,098
Clay, dark brown; sand streaks	20	1,118
Clay, brown and red	10	1,128
Shale, red; sand; gravel	38	1,166
Marl, red, hard	5	1,171
Sand, white, coarse	39	1,210

Well S-3		
Sand	2	2
Clay, red	8	10
Marl; chalk	248	258
Rock	2	260

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well S-3--Continued		
Marl	6	266
Rock	2	268
Marl	8	276
Rock	2	278
Marl	16	294
Rock	1	295
Marl	152	447
Rock	1	448
Marl	108	556
Rock	2	558
Marl	118	676
Rock	3	679
Marl; rock ledges	45	724
Rock	2	726
Marl, hard; rock ledge at 738 feet	12	738
Sand	4	742
Rock	1	743
Sand	4	747
Rock	3	750
Sand; rock ledges	22	772
Sand	66	838
Rock	1	839
Sand	15	854
Rock; sand streaks	4	858
Sand; gravel	36	894
Rock	2	896
Sand	87	983
Rock	1	984
Sand	2	986
Rock	1	987
Sand; clay	36	1,023
Rock	2	1,025
Sand; clay	31	1,056

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well S-3--Continued		
Rock	1	1,057
Marl	3	1,060
Rock	1	1,061
Marl; rock layers	22	1,083
Sand; marl layers	42	1,125
Marl, red	12	1,137
Sand	11	1,148
Marl	9	1,157
Sand	24	1,181
Marl	5	1,186
Sand, light brown, fine-grained	28	1,214
Sand, brown, fine-grained; clay	37	1,251
Marl	3	1,254
Sand; gravel	12	1,266
Sand, brown	14	1,280
Sand, hard	7	1,287
Sand, reddish-brown, hard streaks	32	1,319
Sand, hard	10	1,329
Sand, reddish-brown; gravel	12	1,341
Rock, hard	2	1,343
Shale; sand	105	1,448
Well U-4		
Marl	105	105
Rock	5	110
Marl	12	122
Rock	3	125
Sand; rock	18	143
Rock	2	145
Sand	8	153
Marl	5	158
Sand	8	166

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well U-4--Continued		
Sand; rock	10	176
Marl	31	207
Rock	2	209
Sand; rock	18	227
Sand; marl	83	310
Well U-5		
Marl	93	93
Rock	1	94
Sand	2	96
Marl	8	104
Rock	3	107
Sand	5	112
Marl	3	115
Sand	10	125
Marl	5	130
Sand	10	140
Rock	1	141
Marl; sand streaks	45	186
Sand; rock ledges	43	229
Well U-7		
Marl	100	100
Rock	2	102
Sand	5	107
Marl	43	150
Rock	2	152
Sand	8	160
Marl	67	227

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well U-8		
Marl	170	170
Rock	12	182
Sand	3	185
Marl	20	205
Sand	2	207
Marl; rock	2	209
Sand	6	215
Rock	2	217
Sand	10	227
Rock	2	229
Sand	8	237
Rock	1	238
Sand	7	245
Marl	20	265
Well U-10		
Marl	130	130
Rock	2	132
Marl	13	145
Rock	3	148
Sand	1	149
Marl	7	156
Sand	20	176
Rock	2	178
Marl	20	198
Sand; marl streaks	34	232
Well V-3		
Soil, sand	12	12
Marl, blue	143	155

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well V-3--Continued		
Sand, fine-grained	5	160
Rock; sandstone	5	165
Sand	15	180
Marl, blue	27	207
Well V-5		
Clay	5	5
Sand, fine-grained, micaceous; clay breaks	20	25
Boulder	1	26
Sand, fine-grained, micaceous	38	64
Sand, fine-grained, micaceous; clay breaks	21	85
Shale; clay; rock ledges	21	106
Shale	16	122
Boulder	4	126
Marl; rock ledges	21	147
Marl, blue; rock ledges	57	204
Boulder	10	214
Marl	29	243
Rock	5	248
Marl	2	250
Sand, fine-grained	13	263
Rock	2	265
Sand, fine-grained	14	279
Rock	11	290
Sand	21	311
Well V-6		
Clay	25	25
Rock	1	26

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well V-6--Continued		
Clay	10	36
Sand; shale; silt	32	68
Clay	3	71
Rock	1	72
Clay	18	90
Rock	2	92
Sandstone	5	97
Rock	2	99
Silt; shale	15	114
Rock	1	115
Silt; shale	2	117
Rock	2	119
Shale, hard	4	123
Rock	1	124
Marl	5	129
Rock	1	130
Shale	1	131
Rock	1	132
Clay	86	218
Rock	1	219
Clay	19	238
Rock	2	240
Clay	5	245
Shale; sand	9	254
Sand	7	261
Rock	2	263
Sand	13	276
Total depth	--	300
Well V-7		
Clay	10	10
Sand, gray, fine-grained, micaceous; rock ledge at 27 feet	17	27

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well V-7--Continued		
Sand, gray, fine-grained, hard	33	60
Rock	1	61
Sand, gray, fine-grained, hard	3	64
Rock	1	65
Marl, sandy	1	66
Rock	1	67
Marl, sandy; rock ledges	78	145
Marl, blue, hard; boulders	57	202
Rock	1	203
Marl, sandy, hard; boulders	14	217
Sand, coarse-grained	8	225
Rock	3	228
Marl, sandy	15	243
Rock	4	247
Shale, sandy; rock ledge at 299 feet	52	299
Sand; shale breaks	15	314
Rock	1	315
Sand, fine-grained; shale breaks	15	330
Marl, blue, hard; shale, sandy	288	618
Marl, blue; chalk	20	638
Chalk; marl breaks	154	792
Rock, soft	1	793
Chalk; marl breaks	30	823
Rock	1	824
Chalk; marl breaks; rock ledge at 829 feet	5	829
Chalk; marl breaks; rock ledge at 834 feet	5	834
Chalk; marl breaks	4	838
Rock	1	839
Chalk; marl breaks	291	1,130
Chalk; marl; sand breaks	83	1,213
Chalk, sandy; marl	138	1,351
Rock	2	1,353
Chalk	2	1,355
Rock	2	1,357

Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well V-7--Continued		
Sand; marl; chalk	20	1,377
Shale, sandy; rock ledge at 1,387 feet	10	1,387
Shale, sandy; marl; chalk	16	1,403
Shale, sandy; rock ledge at 1,410 feet	7	1,410
Shale, sandy, fine-grained	18	1,428
Rock	1	1,429
Sand; shale ledges	45	1,474
Rock	3	1,477
Sand; shale ledges	33	1,510
Rock	1	1,511
Sand	17	1,528
Shale, sandy; boulders	97	1,625
Shale, sandy; sand, fine-grained	62	1,687
Shale, sandy; clay, sandy	20	1,707
Shale, sandy; sand	16	1,723
Sand; shale breaks	43	1,766
Shale, sandy, tough	4	1,770
Shale, sandy	19	1,789
Shale, sandy, coarse	31	1,820
Shale, sandy; sand breaks	20	1,840
Sand; shale, sandy	66	1,906
Shale, sandy; sand	140	2,046
Well V-8		
Sand	16	16
Sand, coarse-grained	3	19
Sand, fine-grained, micaceous	26	45
Rock	1	46
Marl, sandy	1	47
Rock	2	49
Marl, sandy	4	53

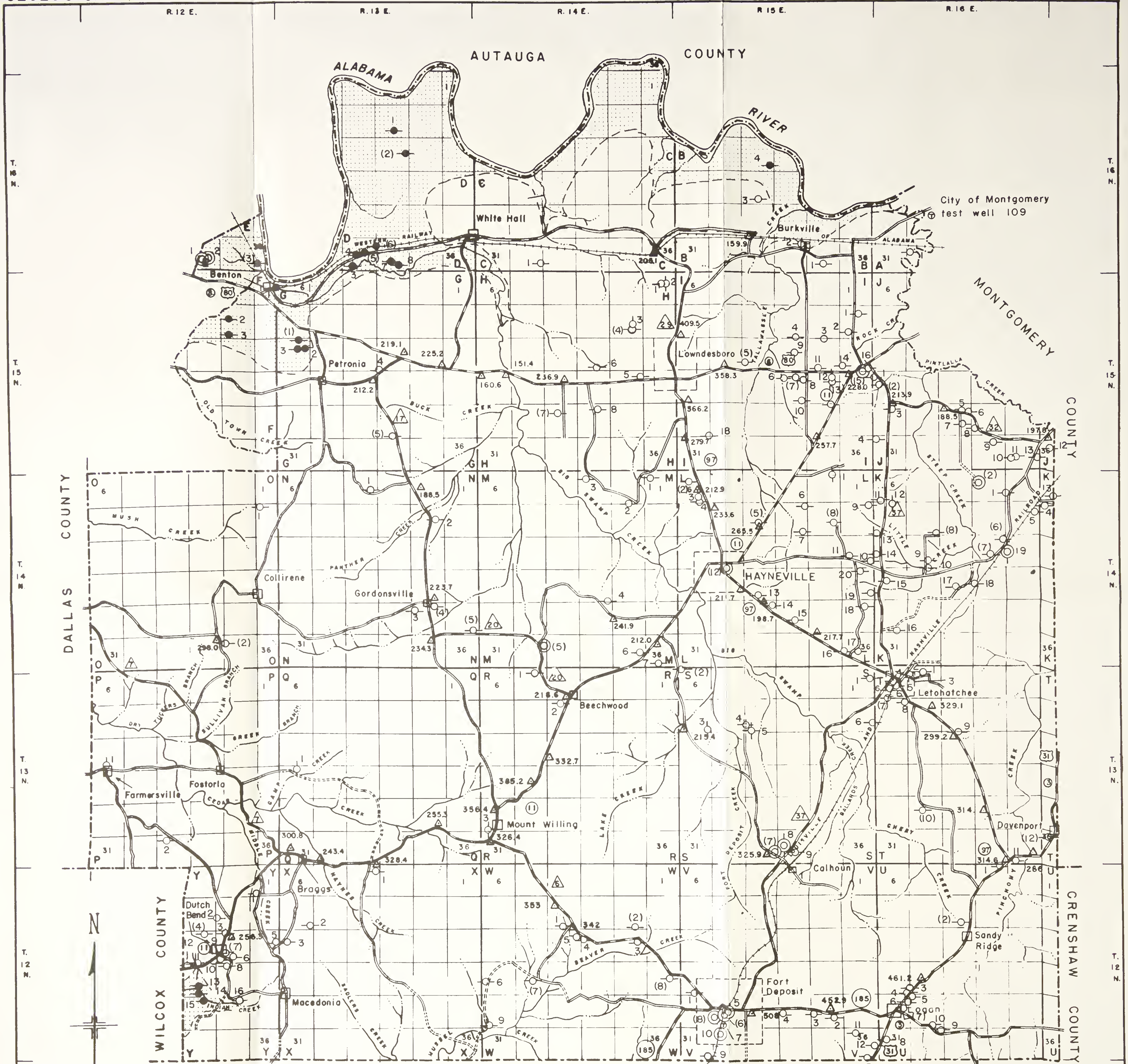
Table 4.--Drillers' logs of wells in Lowndes County, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well V-8--Continued		
Marl; rock ledges	11	64
Rock	1	65
Marl	2	67
Rock	1	68
Sand, fine-grained; marl	2	70
Rock	1	71
Marl, sandy; rock ledge at 76 feet	5	76
Marl, sandy	4	80
Rock	1	81
Marl	18	99
Rock	1	100
Marl; shale	22	122
Rock	1	123
Shale, sandy; marl	8	131
Marl, hard	39	170
Rock, hard	1	171
Shale, sandy	15	186
Rock, hard in lower part	2	188
Sand, coarse-grained; marl	13	201
Rock	1	202
Sand	10	212
Rock	1	213
Sand, fine-grained	12	225
Rock	1	226
Sand, fine-grained	2	228
Rock	1	229
Sand, fine-grained	60	289
Marl, sandy	20	309
Marl	32	341

Table 5.--Water levels in observation wells in Lowndes County, Alabama
(Feet below land surface)

Date	Water level	Date	Water level
Well L-3			
Mar. 17, 1955	148.38	May 5, 1955	147.06
Apr. 1, 1955	146.36	July 6, 1955	146.64
Apr. 6, 1955	146.39	Oct. 13, 1955	146.90
Apr. 19, 1955	146.39	Dec. 14, 1955	149.30
Well S-8			
Aug. 2, 1955	112.08	Nov. 16, 1955	112.79
Sept. 9, 1955	112.60	Jan. 23, 1956	112.90
Oct. 19, 1955	112.63		

MATION SERIES 6 PLATE I



EXPLANATION

Area of artesian flow

Well used for public or industrial supply

Well used for domestic or stock supply

or

Unused well

Solid center indicates flowing well

Test well

Oil well or oil test well

(7)

Water analyzed

217.7

Bench mark and altitude

Paved road

Improved dirt road

Unimproved dirt road

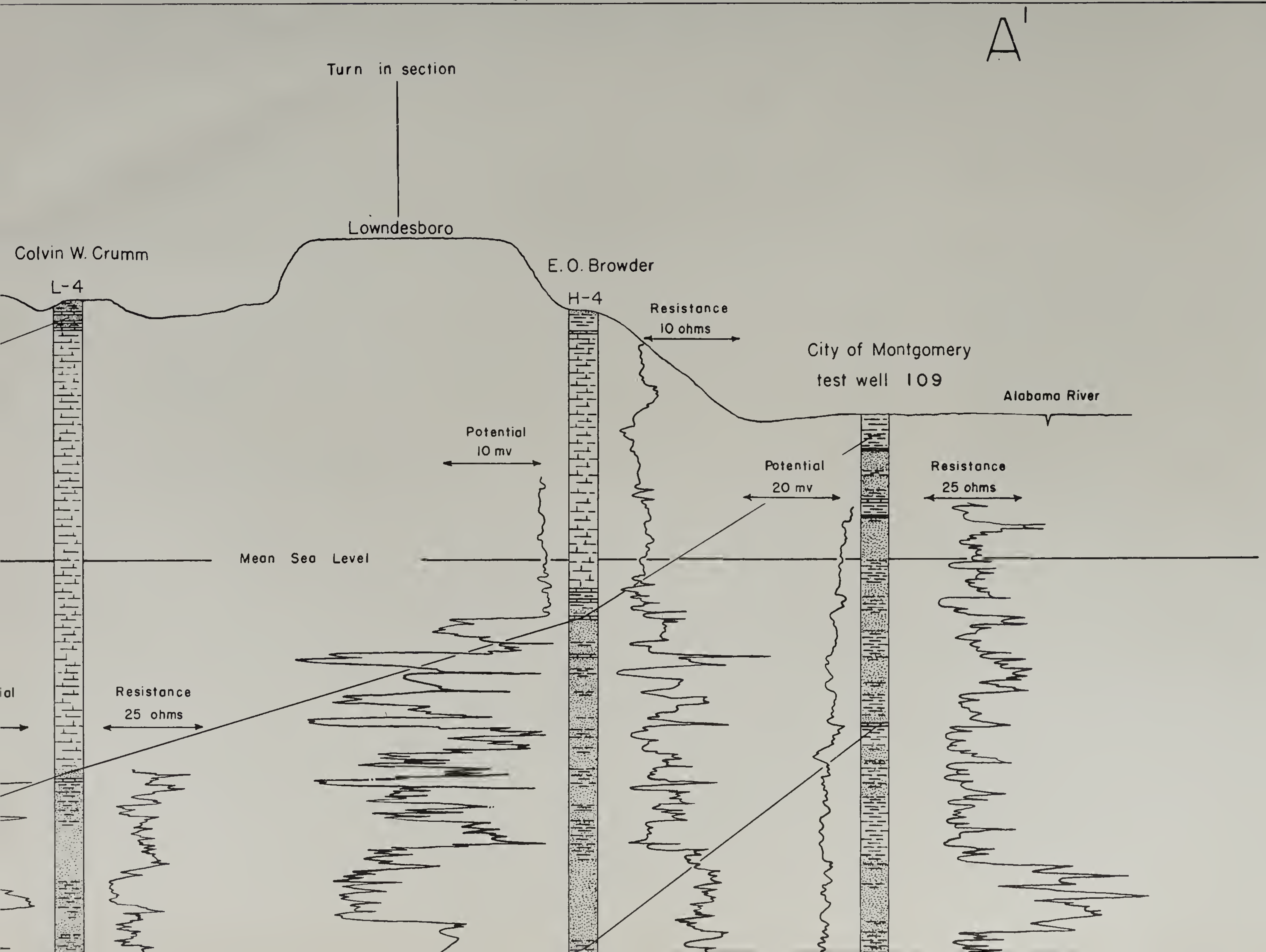
Miles

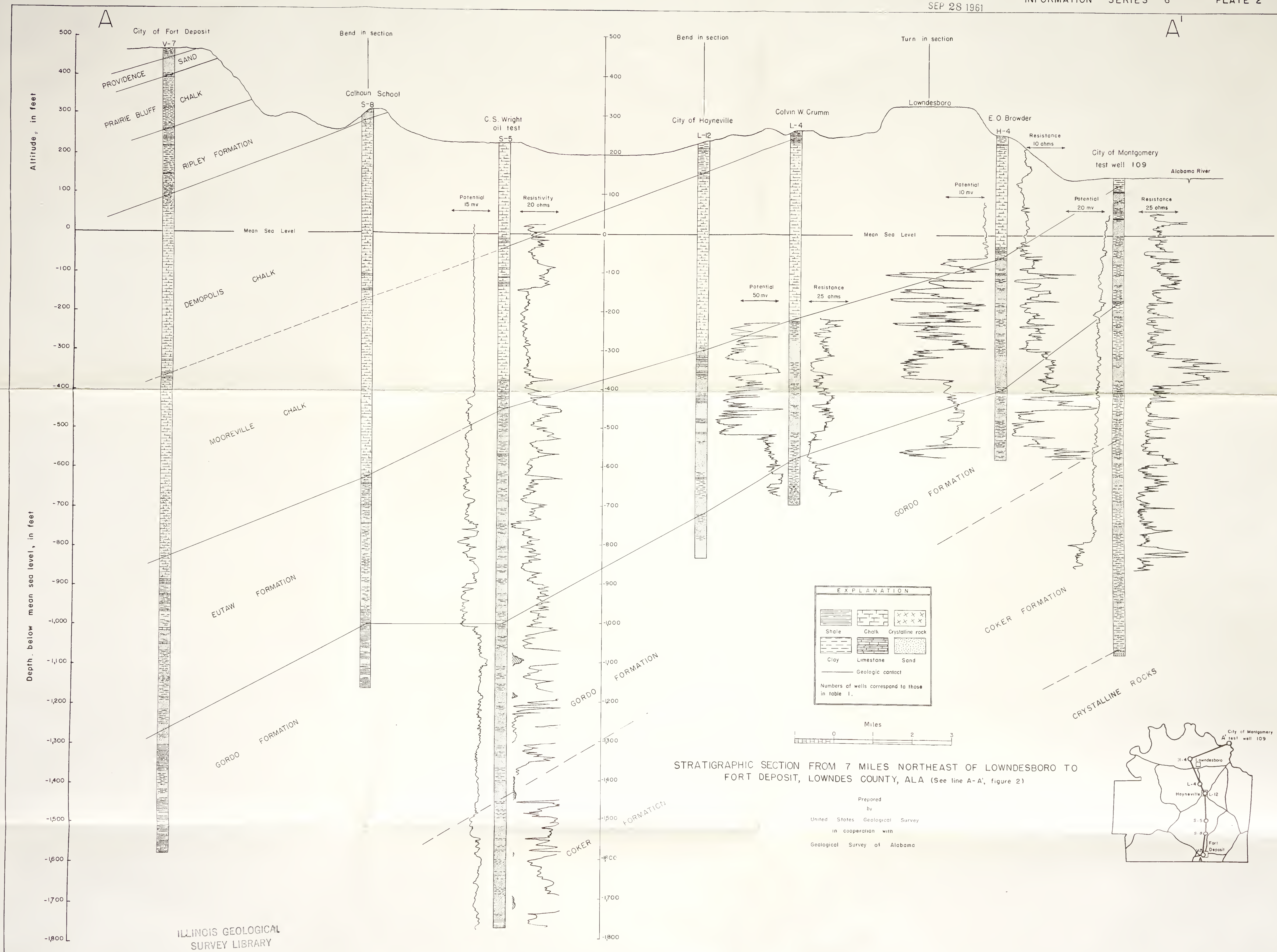
1 0 6

Base compiled from map of the Alabama Highway Department and field notes.

Prepared by United States Geological Survey in cooperation with Geological Survey of Alabama

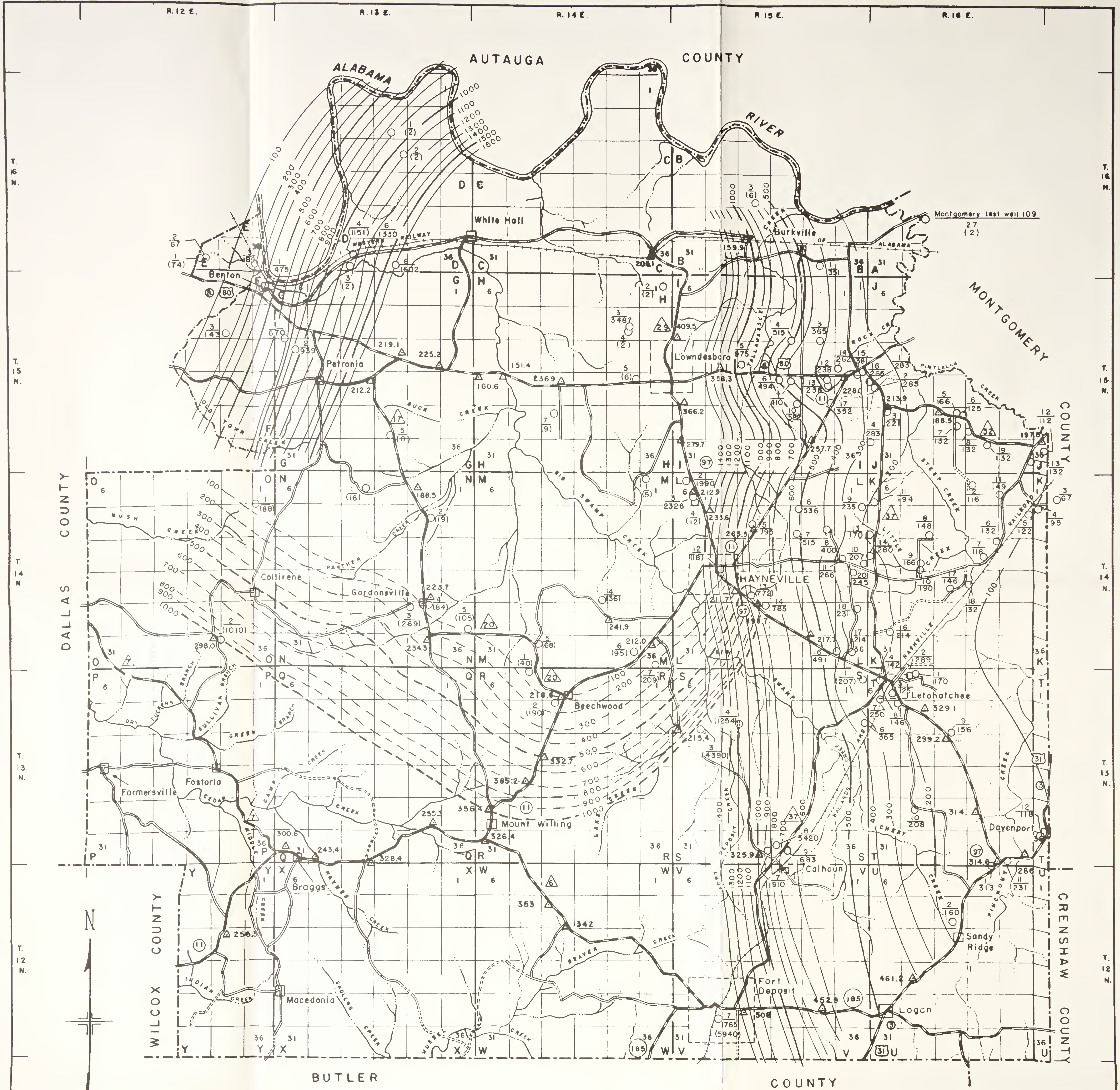
MAP OF LOWNDES COUNTY, ALABAMA, SHOWING LOCATIONS OF WELLS AND AREA OF ARTESIAN FLOW


A'
Turn in section
Lowndesboro
Colvin W. Crumm
L-4
E. O. Browder
H-4
Resistance
10 ohms
City of Montgomery
test well 109
Alabama River
Potential
10 mv
Potential
20 mv
Resistance
25 ohms
Mean Sea Level
Resistance
25 ohms



STRATIGRAPHIC SECTION FROM 7 MILES NORTHEAST OF LOWNDESBORO TO FORT DEPOSIT, LOWNDES COUNTY, ALA (See line A-A', figure 2)

INFORMATION SERIES 6 PLATE 3



Miles

1 0 6

Base compiled from map of the Alabama Highway Department and field notes.

EXPLANATION

——— Isochlor of water in Eutaw formation

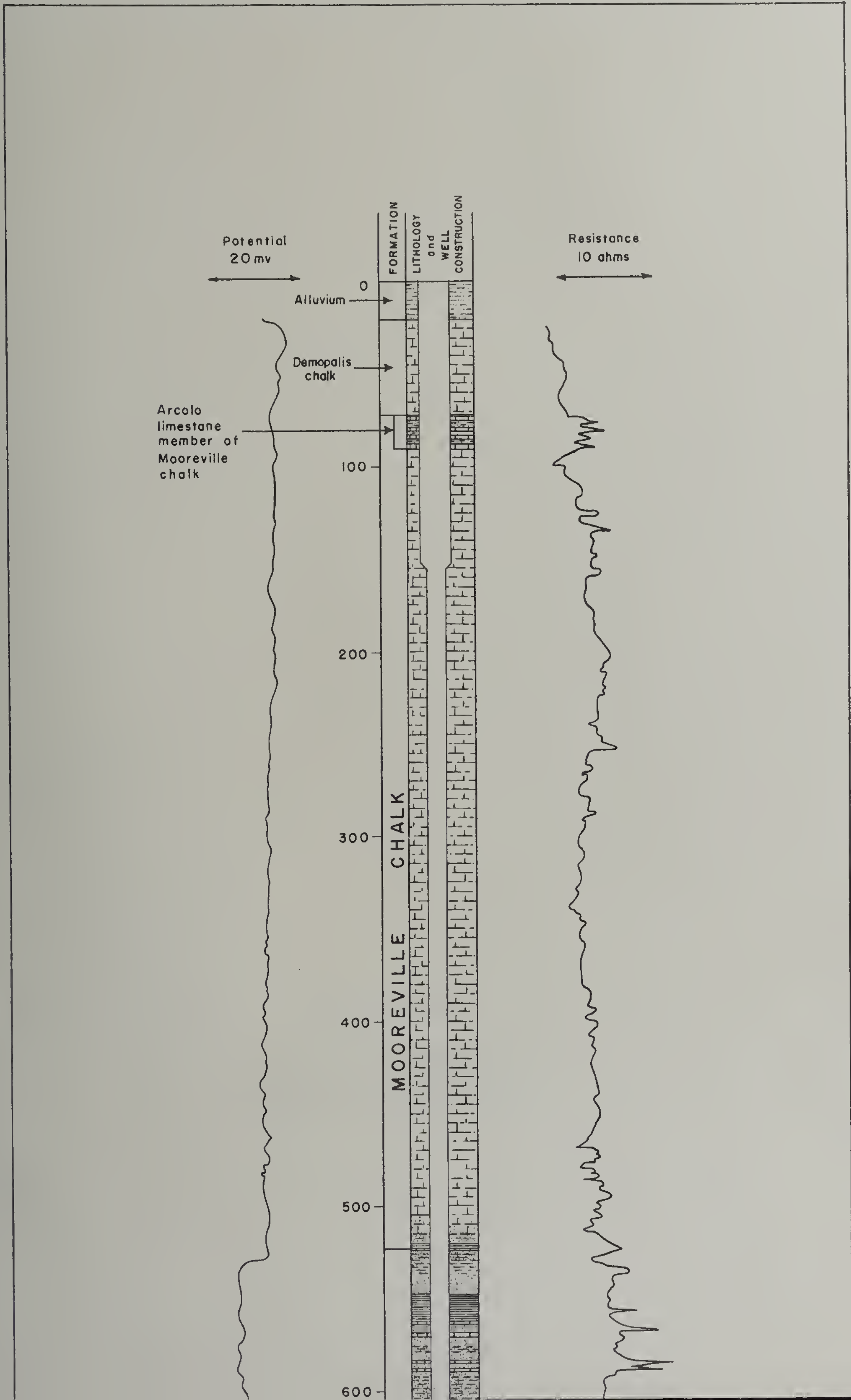
– – – Isochlor of water in Gordo formation

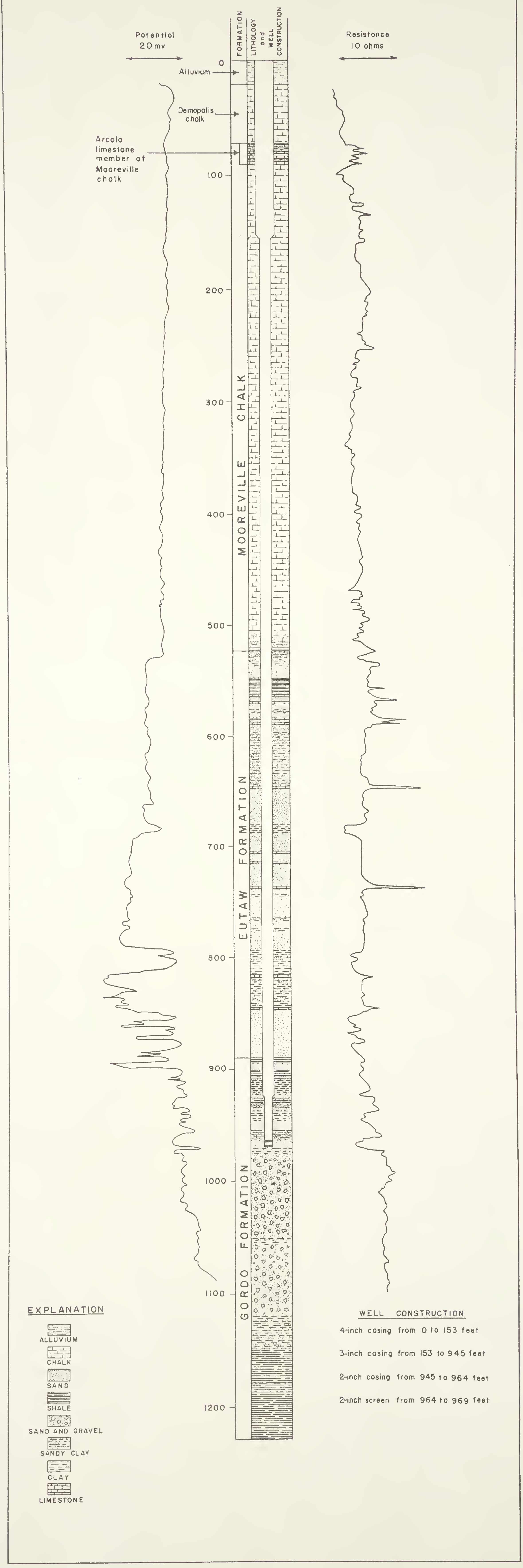
7 / (209)	Well number / Chloride content of water from Gordo formation, ppm
9 / 683	Well number / Chloride content of water from Eutaw formation, ppm
○	Well

Contour interval, 100 parts per million

ISOCHLOR MAP OF GORDO AND EUTAW FORMATIONS, LOWNDES COUNTY, ALA.

Prepared by United States Geological Survey in cooperation with Geological Survey of Alabama


Potential
20 mv
FORMATION
LITHOLOGY and WELL CONSTRUCTION
Resistance
10 ohms
0
Alluvium
Demopolis chalk
Arcola limestone member of Mooreville chalk
100
200
300
400
500
600
MOOREVILLE CHALK



LITHOLOGIC AND ELECTRIC LOGS AND CONSTRUCTION DIAGRAM FOR WELL L-13, LOWNDES COUNTY, ALABAMA